American BEE JOURNAL

Vol. 97 No. 4 1957

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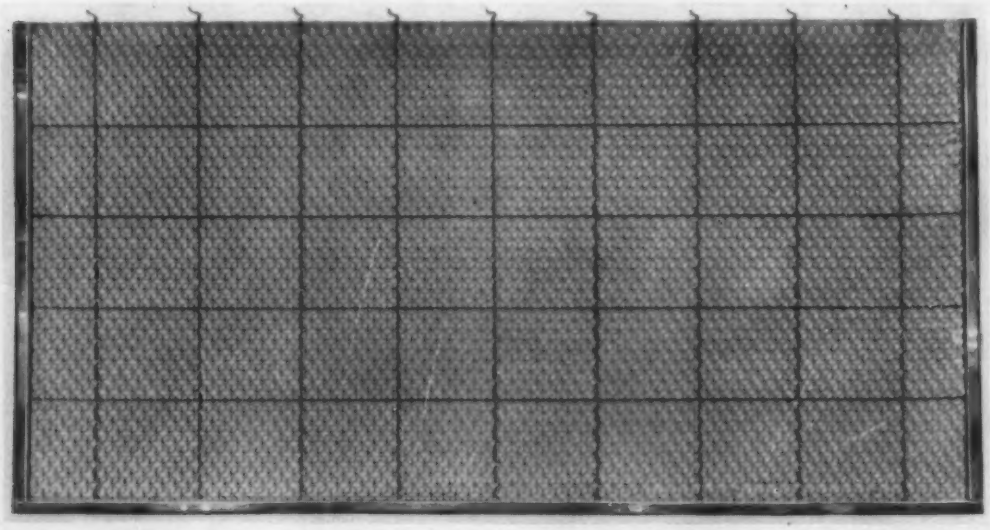

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From John Allen & Son, West Lafayette, Indiana, outstanding farm photographers. Don't know that this young man is concerned about bees or honey but he certainly is delighted with his egg and his bunny.

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We are almost booked solid for April shipments at this time (March 9th.) but still have some May dates open. Thanks a lot.

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The Commercial Beekeeper

This picture came from way back in the days when large bee yards were common. Shows the apiary of E. F. Atwater, 540 colonies in the Boise Valley of Idaho. Where the abundance of honey plants was such that bloom stretched in all directions large yards like this might do well. I (GH) once stood on a roof top in the Red River Valley in the north and in all four directions sweet clover in bloom went beyond my vision. Where can we find places like this now? Also, even with abundant sources, it has been found that several small yards a half mile or so from each other make more honey than where all the bees are in one place.

ETHYLENE DI-BROMIDE – Death to the Wax Moth

by H. M. Krebs

H. M. Krebs is known to beekeepers as the former Inspector in Michigan and also in California. He is now retired and is in beekeeping as operator of the Valley Honey Co-operative in Fair Oaks, California.

The wax moth continues to take its annual exorbitant toll from beekeepers, partly thru carelessness on the part of the beekeeper, and partly because of the inefficiency of control measures usually used. It has been said the wax moth is a friend of the beekeeper and that is true in a certain sense, but when this pest takes its toll of your combs, you will not agree with that saying.

Carbon Disulphide has been used to some extent, but it is dangerous from the standpoint of fire and explosion even from a spark. Gasoline has been used. Some may question this statement, but I have seen gasoline being thrown over stacks of supers in a honey house by the buckets full. It works for a time, but again think of the danger from fire.

Sulphur, of course, has been used the most and is still used more than any other of the control measures. There are several drawbacks with this material too. Fires are not too uncommon from its use, and when this does occur, it would have been better to let the moths have the combs instead of losing the honey house and all. This is caused by carelessness of course, but we all get careless at times. Also, sulphur fumes are not pleasant on the eyes, nose or throat, and they do not kill the eggs. The eggs soon hatch and the whole job has to be done over again. If the combs are not checked soon enough, a lot of damage can be done. Too, if the weather is damp, tools in proximity will rust badly at times.

H. M. Krebs by the side of his new honey-house. Extra equipment came with the outfit when he bought it.

Cyanide has been used with fairly good results but it is extremely dangerous and has been known to take the life of the beekeeper as well as the moths.

Methyl Bromide is one of the best and fastest of the pesticides but it is almost useless to the beekeeper for there are very few air tight comb rooms, and this is a MUST with this material. It escapes too quickly to do the work without an air tight room.

Knowing about Methyl Bromide, I started to experiment with Ethylene Di-Bromide in conjunction with Mr. A. F. Swain of the Eston Chemical Co., who furnished the chemical. The first trial was startling to say the least. Thirty-five supers of combs were used and they were heavily infested with moths, larvae and eggs. They were placed in a low-roofed building with a rough wood floor. Five stacks of seven supers each were placed on a newspaper and the top was then close to the roof. A piece of gunny sacking was placed over the top super and a small unmeasured amount of the chemical

In the bee yard; honey house in the background. Cleats on hive bodies are for use with a fork loader. However, Krebs prefers honey production to pollination.

In the honey house, ready to fumigate a pile of supers with E.D.B. using a piece of burlap sack and a sprinkler bottle.

was sprinkled on the sacking. A flat hive lid was laid on the top. No effort was made to seal cracks between supers and the lid did not fit down tightly due to the sacking.

The stacks of supers were checked the third day and all moths were dead. All larvae, both in the cocoons and the tunnels were black. No effort was made to determine whether the eggs were killed or not. The supers were stacked up as before without further treatment. Periodic checks were made and no reinfection was found for a period of three months. At that time a few tiny larvae were found in the top super in two of the five stacks. All other supers were still clear of infection. The five stacks were given a second sprinkling that day, and the next morning the top super from two of the stacks was taken out and placed on top of two different colonies of bees to see whether there might be any effect on bees from the material when the combs were treated the day before. There was no apparent effect as the bees went into the supers at once and started to clean up the webs and no dead bees were ever found at the entrance. Further tests have shown that it will not kill bees even when applied to bees in supers of honey, but it does make them sick and unable to fly. The balance of the combs in the test remained free from moths or larvae for the rest of the year after the two treatments in the hot building. A low roofed building really gets hot in the summer in this country too.

No attempt was made in this first experiment to ascertain the dosage necessary because it wasn't known whether the chemical would work at all. After the effects were known, we obtained more infected combs and these were placed in an air tight fumigation chamber where a temperature of 70 degrees F. could be maintained. It was found under these conditions that one half pound per 1000 cubic feet was sufficient. However, these conditions cannot be maintained in the honey house or comb room, hence the recommendation is made that one pound per 1000 cubic feet be used. It is not necessary to have a comb room at all, because the supers can be stacked as in the first experiment and the chemical applied with a sprinkler top like those used to sprinkle clothes and from any type of bottle. There are a number of stacks of ten supers high in my honey house now that have been there continuously for about sixteen months with only three treatments and they are completely free from moths or moth damage.

Ethylene Di-Bromide has been given the trade name of E. D. B. here on the coast. It is a very heavy clear liquid weighing eighteen pounds per gallon. It is non-explosive and will not burn, and so is safe from that hazard. It is very easy to apply as stated above and definitely kills the eggs of the moth so that reinfection must come from some outside source. The fumes are heavier than air, so it reaches all parts of the room or stack of supers. The sacking on top retains enough of the E. D. B. to protect the top combs properly and a slight odor can be detected on the sacking for months. The odor is not offensive in any way. In fact, it is rather pleasant.

E. D. B., unlike Methyl Bromide, escapes very slowly and with its ability to kill the eggs, is the best material for the control of the wax moth. There is no residue from it, no matter how it is used, and no odor or flavor is taken up by the extracting combs or by comb honey. That makes it ideal for the protection of the latter. A large producer of comb honey near here to whom I introduced this material says it is the only thing to use. He always had trouble and worries before, but now he says he doesn't even think about possible damage any more. His worries are over.

E. D. B. can be used in comb rooms whether air tight or not by spraying or throwing it up on top of the supers since the fumes drift downward. If the room is air tight, it would be best to use a fan to be sure the fumes are completely diffused thru the room. If the room isn't air tight, a fan could be used for a very short time, but if used very long in this case, it would tend to force too much of the fumes out of the room. In case of an air tight room, it would be best to use a fan to force the fumes out the open door before entering to do any work inside.

No one should jump to the conclusion from the above that E. D. B. is harmless to the beekeeper. Over exposure in a closed room might prove to be fatal. If it is spilled on the clothing, change clothes at once. Also, if it gets on the hands or skin anywhere, wash thoroughly. It won't burn the skin like carbolic acid, but it will be absorbed thru the skin by actual contact. All in all, however, it is the best and safest pesticide to use for control of the wax moth used correctly and with common sense. As an illustration, I treated 55 stacks of supers ten high last year after the weather got hot. The sacking was placed on several stacks, then sprinkled with E. D. B. and the lids placed on top. Then several more stacks were done as before till the job was finished. It was all done while working on top of the stacks close to the roof. No more work was done in the building that day, but the next day work was resumed there and no effect was felt at any time. This was not done in a closed room, but in a building 24 x 48 feet. It would not be recommended that this much be done at a time in a small building or room where the supers would nearly fill it. That would confine the fumes too much so it could be dangerous. Just remember it isn't harmless and don't get careless.

Ethylene Di-Bromide costs about $5.00 per gallon out here on the coast in five gallon cans, with smaller containers slightly higher. There are three chemical companies that make it: American Potash & Chemical Corp.; Dow Chemical Co.; and Westvaco Mineral Products Division of the Food Machinery and Chemical Corporation.

California

Canadian Honey Crop Estimates 1956

"L'Abeille" for January gives honey crop estimates as compiled by the Dominion Department of Agriculture, for 1956. It shows a total crop of 25 million pounds compared to 24 million in 1955 and 32 million in 1954.

Ontario leads the provinces with 7½ million pounds followed by Manitoba (5 million), Alberta (4½ million), Saskatchewan (4 million), Quebec (3 million), B. Columbia (1½ million) following with New Brunswick, Nova Scotia and Prince Edward Island.

There were 14,000 beekeepers in Canada with 342,000 colonies yielding an average of 77 lbs. per colony.

Australian Notes

A short crop is anticipated in Victoria (Australia) for the 56-57 season owing to dry conditions. Germany imported 12.7 million pounds of honey from Australia in 1956.

Australian Bee Journal (Dec.)

Economics of Beekeeping

by R. H. DADANT

(Part One in March Issue)

In the first of this discussion in March it was pointed out that beekeeping is in a favorable position today. Has this been luck or has it been the result of something we have done?

Of primary importance is the fact that the honey price index has advanced more in the last few years than have other price indexes. No doubt the government loan and export programs have contributed materially. Purchasing of U.S. honey by Canada has helped siphon off what might have been a surplus. The fact that our population has increased 2½ million a year while honey production has approximately stood still has relieved our marketing problem. Another factor is the increase in recent years in the number of small to medium sized honey packers that have sprung up. They not only help dispose of the honey in their localities, relieving the pressure on the market, but they develop new outlets for honey.

Then there is the increased promotional work. Besides the American Honey Institute and the American Beekeeping Federation we have had the impetus of state programs such as the one in California. The influence of these programs should not be underestimated.

Other than the increased price for honey another factor that has aided the industry has been better ideas about beekeeping which have tended to increase the crop and hold down costs. In the 50 years between the 1900 census and the 1950 census the average crop as indicated by census figures doubled. These figures are by no means complete since they include only bees operated by farmers, but they indicate the trend. The average crop in 1900 by beekeepers of all classes was 15 pounds and by 1950 it had increased to 30 pounds.

Among these better conceptions also is our approach to disease control. I remember when at home we could count each year on a 5 to 25% loss from disease while today it is virtually eliminated. This not only saved the loss of equipment, the loss in honey, it also saved time and the segregation of equipment. The acid removal of honey instead of removal by brushing, better ideas of wintering, providing more winter stores, better swarm control, improved honey handling methods — all have helped the beekeeper work more efficiently and produce more honey.

What are the things most likely to contribute to future improvements? The one most important in my mind is breeding better bees. Through the years, breeders have done their best to improve stock by natural mating methods, but even where they have shown real improvement it has almost always been for a relatively limited time. Lasting improvement can only be made by controlled insemination through inbreeding and hybridizing so each year you can go back to the basic stock for grafting and drone mothers.

How much improvement can we make? The bee geneticists can make the best guess. They point out that hybridizing has increased results in poultry by 75%, hogs by 250%, corn by 35%, soybeans by 300%. Dr. G. H. Cale, Jr., thinks a safe estimate is that breeding will make possible a bee that will produce 100% more honey than the naturally raised stock of today and that this bee will have other desirable characteristics in addition.

So, we can surely look for real improvement in this way. Several such scientific breeding programs are already underway. As they gain momentum and as new programs are added, I think bee breeding can mean more in the future than any other single factor.

In honey marketing I am very optimistic about the results from new containers and new ideas. The relatively new squeeze dispensers serve as an example. Although the cost is relatively high, producer after producer has said that they skyrocket the use of honey. As their cost drops and they come into more general use, they should be generally accepted.

Improving the quality of table honey should be a help. We think that honey as Nature makes it is more than just another sweet but we have reason to believe that in the methods used generally in extracting, processing, and packing, certain natural advantages are lost. We should investigate and use the latest methods of handling honey without impairing its flavor and food value.

I would like to see honey packed by flavor. Packing by flavor should give honey more display space in the market and increase sales. In my home I try to keep two or more flavors of honey on the table all the time and I notice that the kids shift back and forth from one to another and as a result use much more honey than before.

Another factor I expect to help our honey market is the trend toward more free trade. As the world grows smaller and we are all closer together, the trend will surely increase for products that are produced where they can be produced most efficiently and so allow them to be exported more freely.

The soil bank program should be an impetus in our honey plant problem. With the emphasis on conservation, the program will surely expand. So we should take every advantage of the shift in honey pasture which results.

Down through the years we have had a real problem in the amount of available honey plants. We have seen one part of the country after another come into the spotlight as the land of bonanza crops but with few exceptions these places have not lasted too long, finally dropping back to a level with the rest of the country. I am suggesting also that continuous honey harvest the same as continuous crop harvests may take something from the soil that needs to be replaced. So far, new crops in the farm rotation have helped take up the

slack but I would like to see research on this point.

We need to know more about the nutritional value of honey so there will be a wider recognition of it as a beneficial food. Most of our effort has been to sell honey for cooking or as a tasty food. There should be more demand for it because of its value in nutrition. We all know that through the effort of the research committee of the Federation additional funds have been made available for this and other research work.

In sales promotion for honey we have only scratched the surface of what should be done. About 60 to 70 thousand dollars according to what I can find out has been available each year. This is a big improvement but it still amounts to only ¼ of 1% of the value of the crop. I doubt if there is another industry that spends so little. With a fund 5 to 10 times more and with our excellent natural product, honey could be put on every table and in every kitchen and could be selling at a higher price. To my notion in our promotional work too much emphasis is put on cooking with honey and not enough on using it on the table. The use of honey in cooking is fine but for home use I think our money could better be used to push the use of table honey.

Two years ago we were excited about the new check-off plan instituted by the Honey Packers and Dealers Association, by which every honey buyer would contribute to our national fund 2 cents per can on all the honey he buys, 1 cent to be deducted from his payment to the producer and the other to be paid by the buyer himself. This looks to me like the easiest and surest way of securing funds with the exception of states where honey is packed for promotional work on a state level. The money obtained under the plan goes to the Honey Industry Council for distribution. In 1956 only $9000 was received, representing about 25 million pounds of honey.

I suggest two changes to increase the effectiveness of the program. That beekeepers through the Federation recommend that all buyers automatically deduct 1 cent from the producers check and that he himself adds 1 cent also, making 2 cents for the fund. This would contrast with the present procedure where the buyer asks the producer if he may make the 1 cent deduction. This automatic plan is followed successfully by other similar industries. I feel sure the number of producers who would object would be quite small.

Secondly, I suggest that the Federation have each buyer contacted personally by local producers to solicit his cooperation. Here is where each of us can have a part in molding the future of the industry—by insisting that the buyer to whom we sell our honey cooperate in the check-off program.

In this presentation I have omitted several factors that may be important in the future. One is royal jelly which now seems too uncertain from lack of information. Another is income from pollination, which is so important now in a few localities. Finally the ability of the individual beekeeper to make his operation more efficient. In the government figures I have presented in these two articles half the individual cases would fall below average figures. If we can accept the picture of beekeeping as an average operation then half the beekeepers have better experience and half worse. No matter how an economist might rearrange figures and reassemble them, in the final analysis the success of an individual still rests on his own shoulders.

Dividing In Spring

by Julius Lysne

This method of managing bees will result in greatly increased yields if properly carried out. It must be made clear that only about 40% of the colonies should be divided. Only very strong colonies will do because to divide colonies even of medium strength will cut down production to where there is little profit.

In spring, as soon as pollen is coming in well, with colonies in two hive bodies, the two bodies should be interchanged so there will soon be brood in both bodies. Then the colony is divided by setting one body on a separate stand and introducing a queen to the queenless unit. This should be done at least six weeks before the main honeyflow.

Sometimes the old queen will then begin to fall off in egg laying just before the flow and, to prevent swarming, a young, prolific queen should be introduced before swarm cells are built.

Just before the flow two shallow supers should be added to each unit above an excluder. As long as the queens keep up heavy laying the bees will then keep the brood nests clear to provide room for the brood. When the second super is about half full interchange the two and add an extra super on top. Continue to add more supers during the flow as needed.

This plan calls for good wintering to assure strong colonies in the spring. Be very sure that each colony has a good queen the fall before. Keep the hives in pairs with a distance of at least six feet between each pair.

Those who prefer to requeen at the end of the flow can do so easily. Just move one of the hives in a pair about twenty feet from its location and let it remain until the next day. It has then lost its field force to the colony left on the original spot and has only the nurse bees. This makes finding and disposing of the old queen easy. Place the new queen in her introducing cage between two combs and close the hive. When the new queen has a good start and is well into her stride in egg laying, unite the hive with the other hive of the pair.

Here is an important point in this method of introduction. The queen you want for winter must be in the hive placed on top because, when in this position, she is the one that will survive. The result of the plan is a very strong colony for winter headed by a good queen. Such a colony, well provided with winter protection, will come into spring very strong and uniting the two hives of the pair results in a saving in winter stores.

This system may be used in both extracted and comb honey production. The principle upon which it rests is the amazing reproductive powers of the honey bee. Once a good queen gets a fair start it will soon build up to a strong colony. A prolific queen, supported by about ten thousand bees and ample stores of honey (or syrup) and pollen will soon build up. Too much stress cannot be placed on the importance of good queens. Supersedure is far more common than many suspect.

Wisconsin

SPRING MANAGEMENT OF PACKAGE BEES

by Henry W. Hansen

A week after the package bees have been installed we check on the queens and feed, honey preferably, or syrup. Honey is the natural food of the bees and they seem to do better on it. The honey we use is a dark grade, our capping melter honey, which would otherwise be thrown on the market as an additional amount of commercial grade or bakery honey. I venture to say that for every 10 lbs. of honey we put into the bees, we would have to feed 15 lbs. of sugar to get the same results. Our honey feed is a mixture of about 10 lbs. of honey and 5 lbs. of water. Syrup is about half and half.

It is not that the bees need the extra feed but it is a stimulant. Although the packages with young queens don't need too much encouragement, it is a valuable help. At the same time we mix sulfa in the feed as a disease preventive. Many claim that sulfa feed just covers up disease. I for one don't care. If I cut my losses from disease down to about zero, and do it over a number of years I don't care whether it covers up or cures it. I have used sulfa for about 10 years—in 2000 packages a year—and have had perhaps a half dozen diseased colonies each year. At the same time the sulfa is a stimulant to the queen and she lays more eggs.

Our second visit to the packages will be to look for supersedure which would be in about two weeks. This is about three weeks from the time the bees were installed. If queens are going to be superseded this is about when it will take place. The queens will have laid many eggs and there is as much brood as the bees can take care of if they are good queens. When any hive gets to that point the queen will slow down in egg laying until she has enough new bees to take care of the eggs. Here the bees may mistake the situation for queen failure. If we can catch this right away we can save the package but if we let it go another ten days that new colony is lost.

In this second round then we open the hive, take out the feeder to get room to spread the combs, and take a quick look at the combs with brood, which in most cases will be three or sometimes four. If we see newly laid eggs and there are no cells, that satisfies us the queen is all right. No need to find the queen.

Then we wait another two weeks and look at them again. This brings us up to the middle or latter part of May when we equalize the brood and at the same time look again for supersedure.

If the second feeding is necessary this is the time to give it but don't crowd the brood nest with more than the bees need because they need space for brood. In other words, the brood nest should be for concentrated brood rearing, not for honey storage, thus conserving the heat so essential for package bees.

In equalizing the brood good judgement is needed. If we don't think a package is worth expending any more management on we double it with another colony. There is no use spending money for a queen if you are not sure she will produce a good crop.

After looking at two or three colonies we can see the average amount of brood. It is most likely four or five combs. In going down the line when four combs of brood are found that colony is left alone. The next colony might have only three in which case we leave off the lid and then, when a colony is found with five, we take one away that has emerging brood setting it aside until the queen is found. Then we exchange this comb of brood with an empty comb from the colony that only had three combs of brood. So we go through the whole yard. You will be surprised how much equalizing brood will do for your final crop. There aren't as many colonies that get swarmy while others are way below par.

The next visit will be to put on the first full depth super. Some years we have a faster build-up, some years a slow one but we never put on supers until the hive is full of bees and brood. We would rather crowd them than to put them on too soon. When we put on the first super we like to have the bees come boiling out when we take the inner cover off. One thing we want to do is to conserve heat. There isn't anything that will set the bees back faster than adding supers too soon.

In this respect package bee management differs greatly from that of over-wintered colonies. In wintered colonies you want to prevent swarming and you do that by adding supers and giving the bees plenty of room but with package bees there is little trouble with swarming and if supers are added too soon there are not enough bees to keep the top super warm on cold days and nights. We have had colonies around the first of June with bees hanging outside. We just had the small entrance open. We have tried putting supers on half the yard and leaving supers off the other half because the bees still had room. The ones we supered were far behind those not getting supers until later.

There is a happy medium. They must not be too crowded and they must have room. I am trying to stress the fact that conserving heat means everything in the build-up of the package.

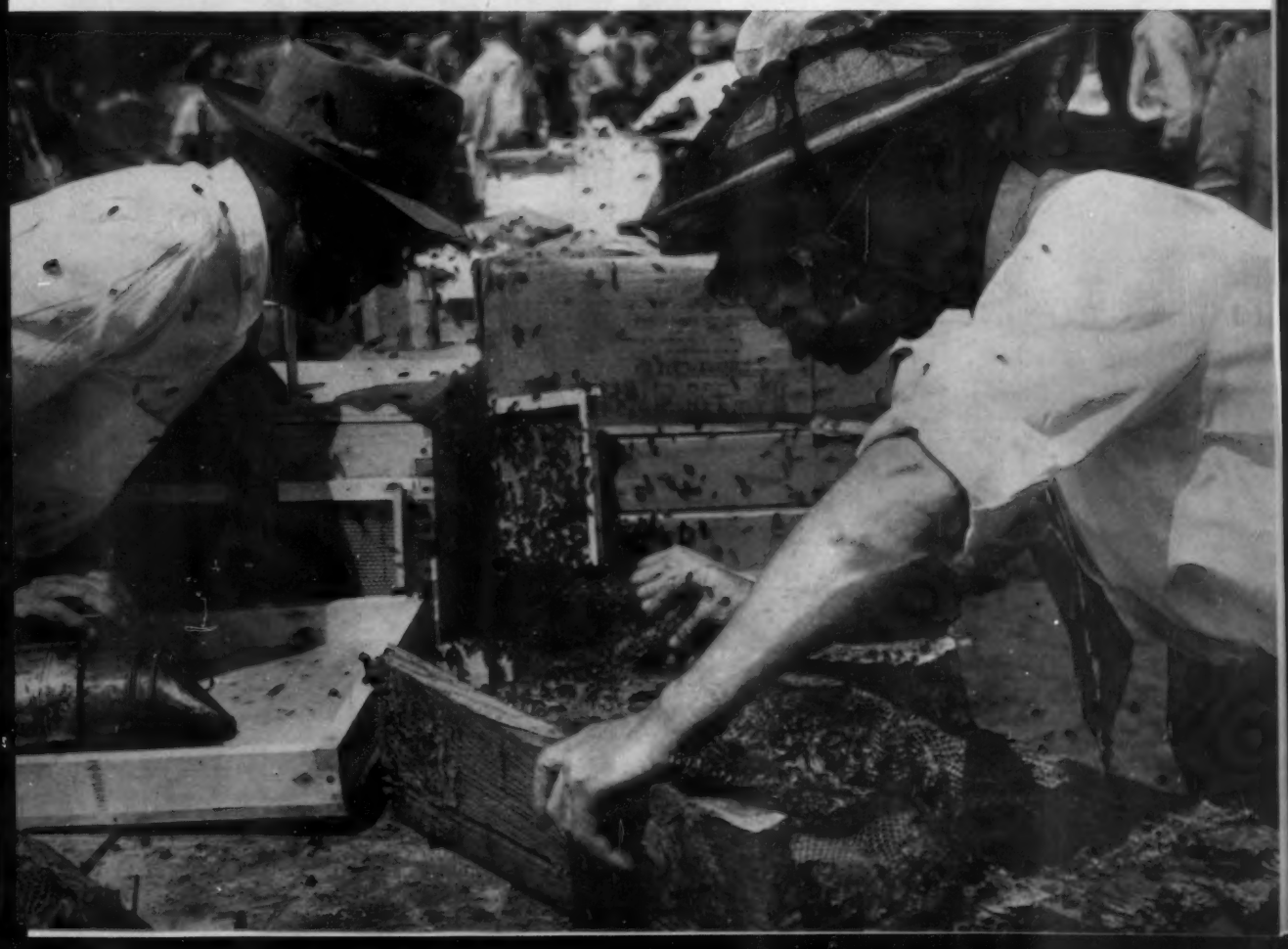
When the honeyflow opens we go out to look under the top supers to see if there are any queen cells. If there are none we put two supers on so they are four supers high. We give them a full entrance and then we have done everything we can. The weather and honeyflow will determine the honey crop from there on out, and supers are added as needed.

If we find queen cells, it is unusually enough to change a swarmy hive with a weak one and there are very few of them. We put the swarmy hive on the stand of the weak one, and the weak one on the stand of the swarmy one. The field bees of the swarmy hive return to the weak hive and the swarmy hive after the loss of much of its field force, will usually cut out their own cells.

Iowa

The Sideline Beekeeper

We got this picture when John Davis was Inspector in Arkansas. Shows Roy Langstone, Deputy from Green Forest, (left), transferring bees from an old fashioned box hive to modern equipment, with the help of Ray Fischer and his son (right) of Little Rock. It was taken at a demonstration at Walnut Ridge, with over six hundred in the crowd, seated in the high school athletic grandstand immediately in front of the bees. In upper left, Roy McLester of the State Apiary Board, and Inspector Davis are explaining to the crowd what the demonstrators are doing with the bees.



POLLEN IN THE SPRING

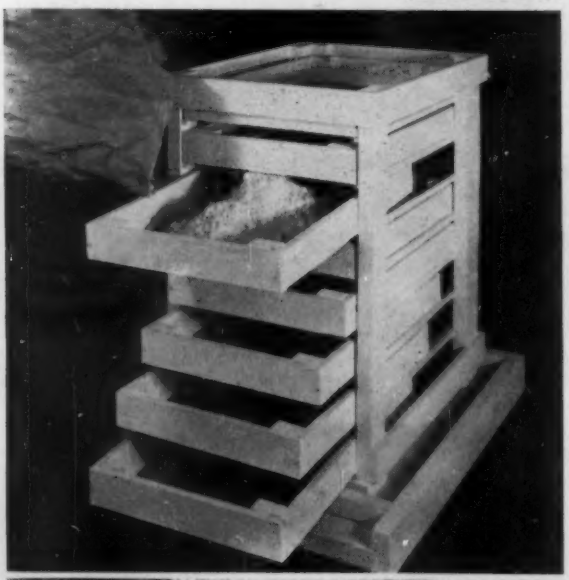
by L. F. Childers

When February comes the elm buds come too. Shortly thereafter March follows with willow catkins, maple buds and dandelion to replenish the fall shortage of pollen. All the while some hardy bees have been whirring around sizing up the prospect of another year. And its high time now for the Boss to be doing the same thing.

Most of the country last fall was the driest ever, and bees in my locality went into the winter short of both honey and pollen, and pollen is the bread of life to the bees. Few beekeepers spend time collecting pollen during the summer and this necessitates early feeding of substitutes. Always include the recommended drugs for disease control when mixing substitutes. Disease never shows up except in the developing brood. And how else could it get into the brood except through feed given to it by the adult nurse bees? So get your sulfa, terramycin, or whatever is recommended, into your substitute or into the syrup used in feeding. I have been doing this for eleven years and my bees are healthier and less irritable than ever before. It pays big.

Natural or substitute pollen is necessary in early spring to encourage

At right, Verel Guibord, Dallas, Wis., uses this tray-chambered outdoor feeder apparently for either syrup or pollen substitute. Below, S. R. Winters, Weaverville, S. C., filling pollen trays with dry pollen substitute. (Photo, Ohio Exp. Station).



Pollen substitute feeder for dry mix for hive top or any position in yard. Just a box with corner posts with a fiber glass top for shelter, larger than box so rain won't get in too much.

E. E. Salge, Texas, uses a pan in a simple box shelter, covered with tar paper.

A pollen mixture, using pollen from combs, with soy flour, syrup and sulfa. (See Dec., page 479).

early egg laying. How much to feed will depend on the size of the colony and the amount already stored in the combs. In the early history of substitute feeding I overfed on two or three occasions and clogged the brood nest so the queen had no place to lay. I would advise you to watch that. From the literature I have read through the years, I gather that bees located along creeks and water courses generally go into winter with sufficient pollen reserves, while those located in semi-desert or irrigated locations are likely to be short because of a dearth of fall flowers.

There are several ways of feeding substitutes. If it is fed inside in cake form be sure it is in contact with the cluster, otherwise they will not move to it. Put it down outside out of the wind most any place when feeding soybean flour. For outside feeding I like to mix the formula sloppy thin and set it around in shallow pans or on a piece of sisal craft or heavy paper. They surely eat it on the spot. I can't see how they can carry it but they lick the platter clean. Saves opening the hive.

There is another vicious headache born of these excessively dry years. It's honeydew honey. Of course bees never gather stuff of that kind unless there isn't anything else to get. There are peach and apple orchards on three sides of me and fortunately the owners are spray wise; and I have never noticed any ill effects. This past year the bloom was rather heavy and my bees had a rollicking time while the bloom was on and, seemingly to please me, they kept it up long after the bloom was gone. I was puzzled to know what the source of it was. One day my neighbor greeted me with a "Hi-there. How's your alfalfa? Better look at it. There's aphids in mine," and believe me they were in mine too.

We walked up in the field about one hundred yards and our shoes got gummy with their sticky exudate and I took two handfuls of those pesky green pea aphids out of the cuffs of my trousers. And do you know there were thousands of my bees down in that sticky mess licking up honeydew and trying to pawn that off on me for honey. My friend was shocked at the aphids and the look of the alfalfa. What excited me was what the bees were doing, and believe me I didn't explain it to him. For once I was lucky my supers were not on and it was a long thirty days before the main flow should begin. So what they got was used up rearing young. We each sprayed with malathion. That drove the bees out immediately. It took about three days to kill the aphids, and about one half of the alfalfa died.

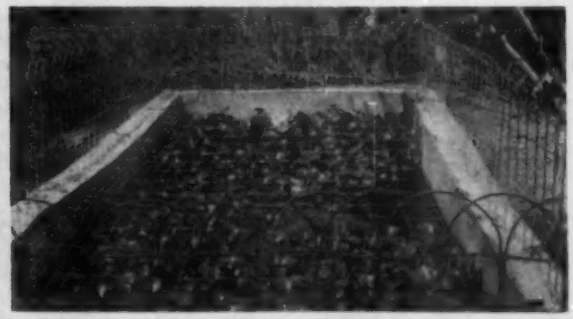
Water for Bees

Ever have one of your neighbors scold you because your bees were getting water from a pump or from a watering trough or some place where bees normally should not be? To try to prevent the bees from becoming a nuisance is to fix up a place where they can get water at home. The plans suggested in the pictures work well and most of them are inexpensive. A handy watering device however does not always stop the bother at the neighbor's, especially if you put out your own waterer after the bees have become used to water gathering elsewhere. Your waterer should be adequate for the size of your bee yard. You may need more than one waterer. And they should be kept full. Better have them going all year, as well as in spring. At outyards try to place the yard near a natural supply of water, like a pond, brook, or river, not too far away. To get bees started on water at home put small anise balls, anise soaked cotton wads, at corners of the water container.

A simple watering arrangement. Slatted float keeps bees from drowning.

Similar plan, with vertical wood strips and piped water supply.

This one is still simpler. Criss cross sticks slow down water flow. Tank gate set to drip to right speed.



More elaborate. Cement pool with water plants. Wire cover and fence to keep out the kids and the cats and other creatures. (Pollett Gardens).

Gripes

by Milton H. Stricker

What in this beloved bee business gripes thou? Well, I have one too, namely: Ten frames in a hive body. There is only one thing worse as far as I am concerned and that is ten frames in a homemade hive body that is a little tighter than the ordinary factory manufactured ten frame hive, which is far too tight for easy spacing of ten frames.

If you put ten frames in, they are so hard to take out, and after burr comb has been built, they are next to impossible to put back in without scraping, or bee squashing or both. To add insult to injury, if the top bars of the frames have not been nailed two ways, both downward into the side rails and horizontally through the side rails into the top bar, these same top bars will come off with the greatest of ease when prying with your hive tool to remove a frame. This is hard on comb, frame and man.

Some beekeepers say that ten frames should always be used when drawing foundation, but with this I do not agree. First, it makes the combs drawn and filled with honey too thin and, therefore, too weak to go through an extractor without some damage to the comb. This is especially true of the two outside frames that may be filled on only one side. These should not be extracted at all, so use them for bee feed until the other side is drawn, making an equalized comb that can be extracted without breaking.

A better system to use would be to place nine frames of foundation in the super, push all the frames together, allowing the excess space on both sides of the frames. After the super has been on for about ten days, go back and respace the combs, placing any undrawn sheets of foundation in the center of the body. If it should be impossible to get back to do this spacing, nothing serious will result. If the flow is exceptionally good and a small amount of burr comb is drawn between the outside frames and the side walls, this can be cut away with an uncapping knife without damaging the comb. If drone comb is formed at this space, when uncapping cut down to the mid-rib in these spots, and place these combs over a colony the following year and feed a can of sugar syrup so these spots can be repaired with worker comb. If a nuc or small colony with a young queen is used, chances are excellent that these "touched" spots will be filled with worker comb.

Remember that nine well filled combs will contain as much honey as ten in a ten frame hive body; more if the outside frames are not filled when ten are used. Also, when nine frames are used, they will be stronger and if you don't want the combs so deep, the extra comb can easily be cut off when uncapping, giving you more capping wax which is the most profitable form of wax you can produce.

New Jersey

African Honey Guides

Among the strangest forms of animal behaviour is that of the honey-guides. African birds distantly related to the American woodpeckers, which "guide" men, baboons and ratels (honey-badgers) to the nests of wild honeybees—supposedly so that these nests can be broken open.

A study of the behaviour is described by Dr. Herbert Friedmann, U. S. National Museum curator of birds, in a bulletin issued by the Smithsonian Institution, Washington. Dr. Friedmann has observed at least 23 instances of the habit and has collected other well-authenticated data from African associates.

Dr. Friedmann describes the behaviour as follows: "When the bird is ready to begin guiding, it either comes to a person and starts a repetitive series of churring notes or it stays where it begins calling these notes and waits for the human to approach it more closely. If the bird comes to the person to start leading him it flies within 15 or 20 feet from him calling constantly and fanning its tail. If it waits for the potential follower to approach it for the trip to begin, it usually perches on a fairly conspicuous branch, churring rapidly, fanning its tail, and slightly arching and ruffling its wings so that at times its yellow shoulder bands are visible." British Bee Journal.

Peppermint Spray Instead Of Smoke

Last year one of the fathers at a Cub Pack meeting gave me an 1853 copy of Langstroth's "Hive and the Honey Bee." We noted that he used syrup scented with peppermint to spray on the bees instead of smoke. My partner and I used it last summer through one of those plastic containers my wife uses for sprinkling clothes and we were delighted with how mild it kept our bees.

Coupled with this we used some canvas covers, weighted down at each end to hold them down, and placed the hives as we worked them, one tier in front of the other on a stand. With the peppermint syrup and these covers, and providing two front entrances for the incoming bees, we enjoyed our work more than ever and suffered very few stings. We will continue the same plan this year. The canvas doesn't kill bees as often happens with inner covers and any bees caught under it can crawl either in or out without getting hurt.

Ernest J. Morris
Wisconsin

This ring-neck snake is a real pet. Will hide in your pocket, pose like this, and is harmless. It loves to live under hive bottomboards. (Photo by Cale)

Do Snakes Eat Bees?

by L. F. Childers

One time I collected some odds and ends of combs and wax and melted it up and filtered it through a piece of fly screen into a honey can with the top cut out. I had made a depression in the screen large enough to hold the slumgum and washed it all down with boiling water. With that done, I was called away for two hours. When I returned there were bees hovering over the slumgum. I thought best to carry the lot outdoors and reached for the screen to lift it. As I did this, a black snake about thirty inches long revealed itself holding onto the edges of the can. When I lifted the screen the snake fell into the hot wax and about a third of it went through the crust into the hot water. That was severe punishment and the little fellow was frantic to get out. I threw it on the floor and dashed some cold water on it with good intentions, but the wax solidified and there the poor snake was partly encased in solid wax! I did not kill it and it had a time getting out the door into the grass.

The slumgum was near the middle of a room 20 x 24 feet with two 8-foot doors wide open. There was a strong odor of wax and the sight of hovering bees. Why did the snake lift itself up fourteen inches above the floor and drape itself around the sharp edges of that hot can conveniently under the hovering bees? Had I been smart, I would have killed the snake and opened its stomach to see if there was evidence of recently swallowed bees.

I had another snake experience more humorous than scientific. One day I was spading in the apiary and sat down to rest. I always left snakes there as mousers. Soon I saw a line of broken twigs and debris falling in the fence row. Looking up I saw my old blue racer friend stretched out, his four-foot length in the weeds above the top wire of the fence. He was watching a mouse on the ground beneath. I wanted to see the catch but they soon moved out of sight. I turned to get up and there was another snake just behind me. When I moved he raced past me to the fence and stopped. The bigger snake skidded up from below and biffed the little fellow in the ribs with its nose, then they both ran through the fence. Did anyone ever hear of snakes playing? I remained perfectly still but they didn't return so I put my hand down to get up again. Wow! That little black imp had slipped around behind me and was almost under the very crook of my knee. A miserable, cold chill ran up and down my spine. I left like a shot.

Those two snakes were evidently curious about me and the little fellow came back to see. His excursion must have pleased him for he waved his tail at me as he went through the fence. I thought it time to go to work, for was not that the reason Adam and Eve got into trouble, fooling around out there in the garden with nothing to do but watch the snakes play?

Missouri

Traffic Deaths

Traffic deaths are mounting. Last year 40,200 people were killed, an all time record and 2000 more than in the previous 12 months. As President Eisenhower says: "When any particular activity in the United States takes this many lives in one year it becomes a national problem of first importance, a problem for every citizen, no matter what his station or what his duty. If we can mobilize a sufficient public opinion this problem can be solved. Let's each of us make sure that we obey traffic regulations; let's follow common sense rules of good sportsmanship and courtesy; and let's each one of us resolve that, either as drivers or pedestrians, we will stay alert and careful, mindful of the constant possibility of accidents caused by negligence."

It is appalling to think that on an average day 25,000 accidents occur, 100 people die, 5,500 are injured with property damage exceeding ten million dollars.

Honey For Burns

The next time a member of your family suffers from a burn, cover the injured area with honey. The honey will absorb a lot of water from the burn and will either prevent or reduce blistering. When the honey takes up the water it will soon run off of the lesion and it will be necessary to add more honey. A light sterilized cloth pack should be used to help hold the honey on the burn but do not bandage tightly. The important thing is to keep a constant film of honey over the area for an hour or more.

William T. Wilson
(In Colorado B-Notes)

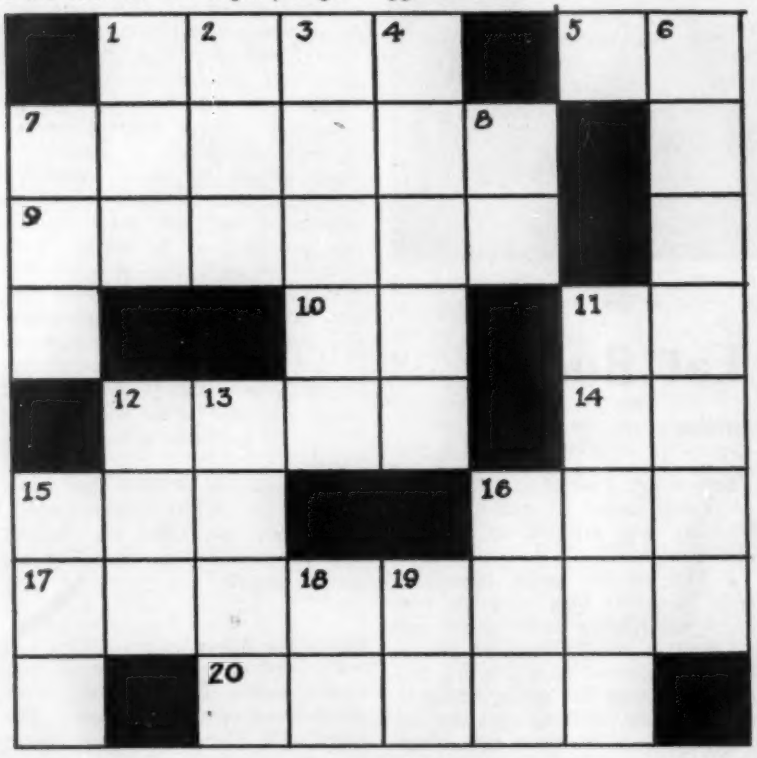
Von Frisch Movie Film

A new film taken abroad is just out which shows the processes used by Von Frisch in his famous conclusions on the "dancing bees." We have seen the film and assume that it is available on a rental basis. Anyone interested should address E. J. Mauthner, P.O. Box 231, Cathedral Station, New York 25, N. Y.

PAT'S PUZZLER

Comb Honey

Sixty five contenders for March; last time 53, February 153. Answers from thirty three states. Winners retire, please. Others go ahead and you hesitant folks come on in. One year subscription if you win. Everyone says it's fun. Don't know but what it takes a bit of imagination to dub this puzzle "comb honey", but Pat says it is. Last month's "clover" (see below) was supposed to be a shamrock. Pat says: "When I made up the puzzle St. Pat's day was so far off my memory was foggy." She also says that puzzle answers are being sent to her. Better send them to the Journal. Pat might just get bogged down.

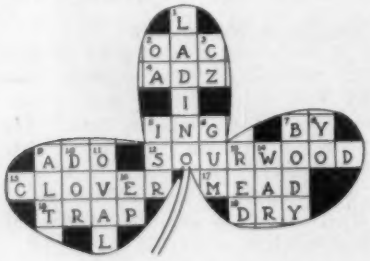


ACROSS

1. Second Greek letter
5. Correct
7. Honey high in levulose with mild exquisite flavor
9. Karl von _____ published "The Language of Bees"
10. Tantalum (Chem.)
11. Aluminum (Chem.)
12. French city and port
14. Travel
15. Head covering
16. Fruit tree common in California
17. _____queen's wings is done to prevent swarming
20. The part of the bee that hurts

DOWN

1. Prickly envelope of a fruit
2. Prefix meaning "upon"
3. Witness
4. Highway to Alaska
6. Head of Battle Creek Sanitarium
7. Transfer (Abbr.)
8. Exclamation
10. Tellurium (Chem.)
11. Growing older
12. California (Abbr.)
13. Genus of the bee
15. Civilian Conservation Corps (Abbr.)
16. Part of a fish
18. Platinum (Chem.)
19. 3.14



March Results

A slip up in that there was no 11 listed in the down column. It's given as 12. "Egg shaped." Should have been 11. But everybody noted it and gave "oval" anyway. This time 10 down, drone bee, is "dor." Most everyone got it right. And in Webster it is right there as the "drone of the bee"; not only the honey bee but any other.

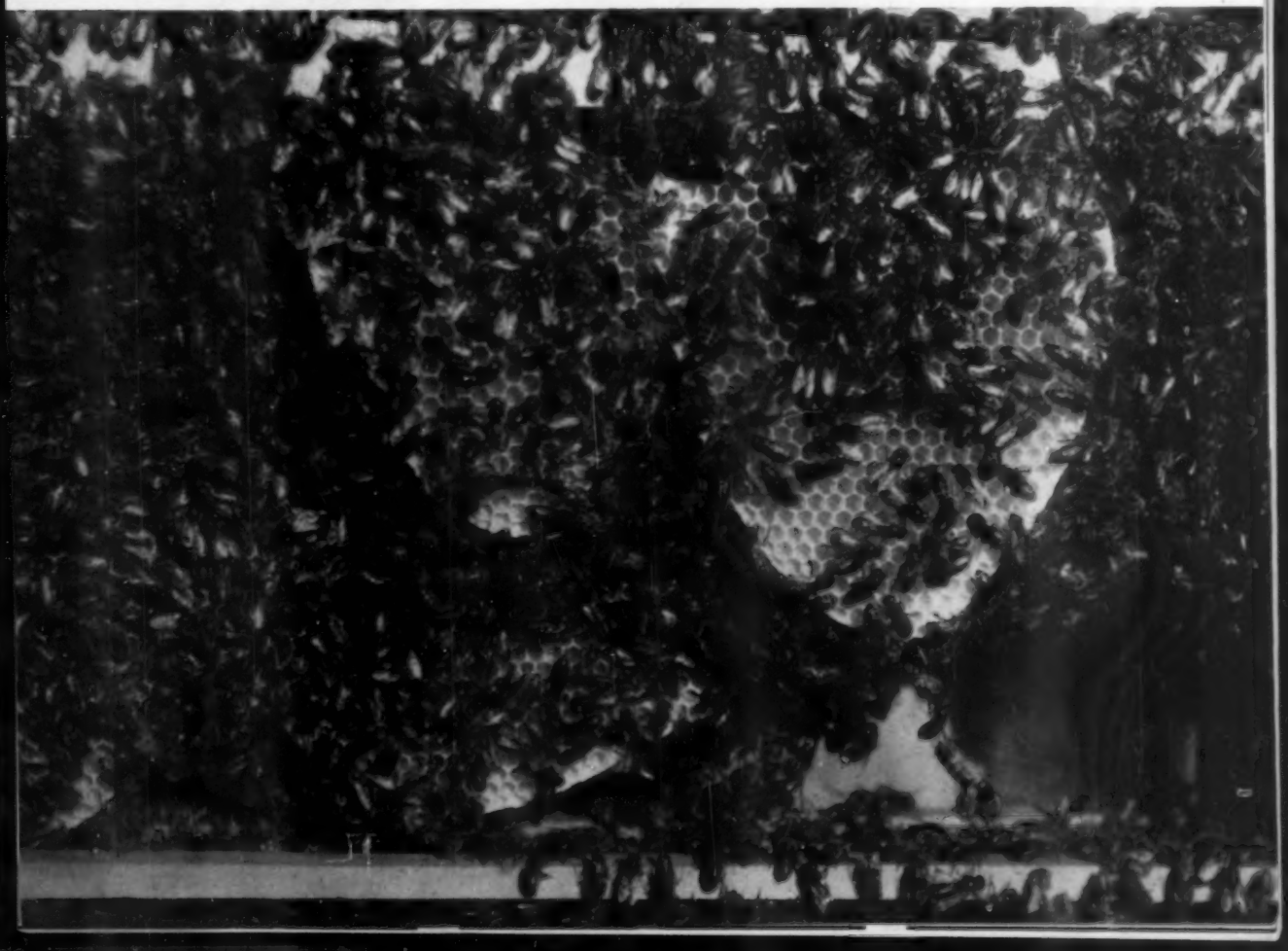
As in February, there were some very close mailings. Remember, the first letter with the correct answer from each state, according to the day and hour of mailing, attested by the post office stamping, is the winner. Some states only had one entry. Too bad. Some had quite a few (see list). Note the ties. Harry Starnes and Mrs. Starnes must have run to the mail box at the same hour and minute. Since this is in the same family, what to do? Also note the tie in Massachusetts, Allen Baker and Robert Rusher. No conivance here. So away goes two subscriptions.

Walter Rheinheimer, Maryland winner, comments: "I received the March issue on Friday. That same evening, within less than an hour, I had the puzzle completed except 10 down and 18 across. That archaic word dor for drone had me stumped and it took a stretch of the imagination to figure the trap as being the Alley, drone and Queen trap."—Mrs. Leon Hall of Maine says she likes Pat's puzzle "because it is a different design each time." —W. T. Wilson, Colorado A & M College, often an ABJ contributor, writes: "After reading the articles in the new issue, I intended to put the puzzle aside until I had more time but I just didn't have the will power to resist it." —And Dr. J. E. Eckert of California tops it. "I have been working your crazy puzzles as they come in and this last one was interesting because I picked up that little-used word for the drone bee, dor."

Arizona—Edward L. Jones, Bagdad
British Columbia—Howard L. Adcock, Armstrong
California—Dr. J. E. Eckert, Davis
Colorado (5)—William T. Wilson, Fort Collins
Connecticut—Marshall J. Walker, Storrs
Georgia—Charles S. Garrett, Buford
Idaho—Conlie Greene, Twin Falls
Illinois—Lloyd C. Lindenfelser, Tremont
Indiana—Mrs. Harry T. Starnes
Mr. Harry T. Starnes, Crawfordsville
(a tie)
Iowa—Arthur H. Cole, Audubon
Louisiana—Enid Sawyer, Bunkie
Maine—Mrs. Leon C. Hall, Augusta
Maryland—Walter Rheinheimer, Baltimore
Massachusetts—Allen N. Baker, Westwood
Robert H. Rusher, Hyannis
(a tie)
Michigan (8)—S. S. Miner, Niles
Minnesota—Al. Hermanson, Westport
Missouri—Chester W. Scott, Bigelow
Nebraska—Keith Hudson, Fairbury
New Hampshire—E. N. Hobby, Dover
New York (4)—Gerald R. Barth, Clayton
Oklahoma—Sam Hanson, Oklahoma City
Oregon—John W. Wharton, Burns
Pennsylvania—Mrs. John L. Zapf, Bethlehem
South Carolina—L. J. Jordan, Lancaster
South Dakota—Walter E. Sproule, Hot Springs
Texas—Mrs. J. L. Happ, Austin
Virginia—Charles M. Dixon, Elkton
Washington—Roland E. Stephens, Rock Island
Wisconsin (7)—Oscar Rutland, Mauston

The Beginner and His Bees

These triangles of naturally built comb are built along the topbar of a frame. Some bees were shaken into a hive body which contained only empty frames from which the combs had been removed, leaving only a ridge of wax under the topbars. From there the bees took over. They were fed at the bottom of the body with thin syrup and pictures were made at various stages of comb building. The wax was beautiful and white and as delicate as could be. Quite a sight to see the bees hanging on to each other in long clusters. And to see the little triangular scales protruding from the wax glands that were secreting wax on the under side of the bees. Of course, we don't want combs built at the whim of the bees. We must have just as nearly perfect combs as we can get in each frame to get the best results in beekeeping.



The Beginner and His Bees

POLLINATION

by W. W. Clarke, Jr.

Beginning beekeepers often do not realize that bees are a vital part of general agriculture. They are the chief agents in the cross-pollination which is necessary if most of the flowering plants are to bear fruit and reproduce themselves. They carry pollen from flower to flower as they collect nectar and pollen for their own use. In the good old days most farms had a hive or two of bees, and there were many colonies of wild bees so that much of the pollinating was carried on naturally. But with today's agricultural practices of specialization and clean fence rows it becomes necessary to make arrangements to have bees at hand for pollinating.

It is true that the bees which are used for pollination seldom produce any excess honey for the beekeeper, even though their efforts increase the yield of red clover seed or fruit. However, the beekeeper will find that he will benefit: perhaps with a good location for his apiary, or a gift of fruit, or some cash, or even a feeling of good will.

More and more residential areas are imposing restrictions of various sorts on livestock including colonies of bees and it is encouraging to note that almost every farmer or fruit grower is willing to give space for a bee yard in return for the pollination of his crops.

One beekeeper reports an interesting experience concerning his keeping bees on a lot in a residential area. When he moved into his new home he set several colonies in his backyard. Immediately the neighbors complained to a man they were afraid of being stung. The beekeeper soothed them with promises that he would find a new location. He was somewhat slow to act and by the time he was ready to move his apiary a summer had come and gone. As he began to load the bees onto his trailer, two of the neighbors (the ones who had protested most vigorously) came to protest the removal. They had found that their home garden crops of lima beans, cucumbers, fruit, and berries were the largest they had ever harvested and they wanted to keep the bees in their immediate vicinity. One man offered a location on his own lot. No one in his family had been stung at all and they were not afraid anymore. It must be noted that this beekeeper was enthusiastic and he did a fine job of educating those neighbors while he hunted for his new location.

Spray poison is the biggest problem faced by a beekeeper who keeps bees in an area where commercial crops are grown. Fruits, vegetables, and seed legumes are sprayed many times each season. Almost without exception the insecticides used today are toxic to bees. By observing certain precautions the hazard can be held to a minimum. The spray job could be done at night when the bees are not active, or the hives could be removed to another location for the time that the spraying is in progress.

Although bees in an orchard will seldom produce a crop of honey, there is one advantage to this location. The early nectar will help to build up the colonies so that they will be strong for the main spring honeyflow.

There are some beginning beekeepers who are able to rent their colonies. A farmer with a small acre-

Worker bee on apple blossom. Note the full pollen basket on her leg.

age who needs only a few colonies will sometimes arrange a personal contract rather than deal with a commercial beekeeper. In Pennsylvania there are a few cases where fruit growers will underwrite a beginner (help him to become established) if he will place the bees in the orchard during the blooming period.

Anyone who is interested in pollination work must remember that strong colonies of bees are essential for good results. In some cases this means that the bees will reach their peak strength well ahead of a good honeyflow. When this occurs swarming is a definite hazard, and unless the colony is kept supplied with adequate space and food it will go down hill and be in poor condition for the honeyflow.

The beginner should consider crop pollination if he will gain: first, a good site for his apiary; second, increased crop yields in his own garden; or third, a share of the crop which is produced by pollination.

A TWO YEAR STORY

by Ray E. Smith

Last spring dawned bright and clear, with a month of fine weather, so, with great optimism, my three colonies were divided into fifteen, and left to their own resources. Meanwhile hives were set up at a furious rate, twelve frame hives, measuring 20 inches to the side, the combs space 1½ inches and built to hang *across* the entrance rather than in the normal manner.

About May 10 the nuclei were transferred into the hives, having grown into five comb colonies by then. Even at that stage there were a few quarts of honey obtained since some of the colonies were plugged in the brood nest with honey from spring bloom. This honey was wanted by a local doctor for asthma sufferers, and some went on the table. The colonies were then moved into the country because the back yard was crowded with kids and hives and there was no room for ball games. Only five hives were left.

Then later when I went out to look at them after having already put on twelve frame second stories, I found the latter mostly finished. The brood chambers had some perfect combs of white-capped sealed honey without brood at the back and two were plugged, which ought to sell anywhere, and they were filled and capped. From four hives I extracted about fifteen gallons of pure water white pale yellow honey and never touched a comb that ever held brood in it. I was unprepared to any more than make their way for this sudden deluge of honey as I did not expect these fifteen colonies this first year by drawing 24 combs and filling half of them. Instead they were plugged with honey in the middle of July and the queens were unable to lay.

Commenting on the behaviour of the bees in hives of this sort with crossmounted combs, the incoming loads are put in the combs nearest the entrance at least by the pollen-carrying bees, so they are full of pollen and nectar. Then the brood begins with combs well drawn in the corners and along the bottom bar. The back combs are filled with honey, free of pollen and usually free of brood. If you want a comb of honey for feed you can take one without brood, and if you need pollen take one in front and if you want to have the wax drawn, trade the rear comb of honey and put in foundation, and it is drawn well just like a super drawn comb.

My colonies are part Italian and part Carniolan and, for me at least, the best are the Carniolans. The Carniolan queens never let the bees plug the brood nest. The one by my back door had twelve combs of brood in the brood nest from wall to wall. The super is already partly full of brood and a bang-up crop from the second cutting of alfalfa coming.

This colony was started on Memorial day with a Carniolan queen from a five comb nuc, three of them with bees, and two of them honey and pollen. I will use this queen as a breeding queen. I have one Italian almost as good and I will save her too. I have a perfect place for breeding in the hills where there are few bees.

This year I increased eight times. Some from swarms, some divisions, and some from bee trees.

Tonight I went out with a truck to move 11 colonies which have been in alfalfa all summer. They were cut down to one story of twelve frames in a 20 inch square hive. I removed the honey, leaving them with the brood chamber full and I mean full. Each colony weighs close to 120 pounds and it is some job to get them on the truck. I moved the bees to winter quarters on an old road bed where there is little wind and lots of sun and tomorrow I will put the food chambers back on them.

These hives were started in the spring of this year with three frame nuclei. They raised their own queens and grew into 24 comb colonies with some honey.

I sent honey to the state fair at Salem and took first place for extracted honey. This blue ribbon surely looks good, so does the honey, absolutely water clear. I've been sold out of all honey but my own supply of extracted at 25 cents per pound.

I put full supers of comb honey in the grocery store, leaving the combs in the super and the grocer takes them out when the customer buys. This is a good seller. People have not seen it like that. One disadvantage is too much honey for some of them to handle. The ¾ super combs weigh about 7½ pounds. But they do look good and do sell. Next year I plan to use ½ supers with center divided. More practical.

I went 200 miles into the valley and brought back 40 bee colonies an old timer sold out. They were no good for anything but bees, but the price was right and they were free from disease, and I am making some supers now for them.

This spring I would have been horrified at the thought of owning 68 colonies, but now I know I can handle 100. That's some jump from one swarm caught fifteen months ago. Bees have paid every cent of their cost. I have only contributed my time. I plan to continue this way until I have all my two boys and I can handle and then go at it full time. I am a printer for the local paper and I may devote most of my time to beekeeping and only part of it to printing. However, I like both printing and beekeeping.

I plan to expand for several years and all my production will be for that purpose. Then I will produce bulk comb honey again because there is such a good market for it.

Oregon

The reward of wild honey hunting is some fine, tangy honey. Typical tree yields about twenty pounds.

HUNTING WILD HONEY

Nature's Sweetest Sport!

This fine picture story is from the Dodge News, Detroit, Volume 20, No. 10 by permission of the publishers, Prince and Company, Inc., for the Dodge Division of the Chrysler Corporation through Beryl T. Salisbury. The pictures and story are by Earl Palmer, the roaming cameraman of the Blue Ridge Mountains, at Cambria, Virginia. The Philadelphia Academy of Natural Science also published another of his bee stories.

It takes a keen eye, a way with a bee and a special kind of daring, but —as those who have done it say— "There's no thrill like finding a 'sweet tree'!"

Folks who have tried sports from speckled trout fishing in a three-foot stream to stalking mountain lions say there's one little-known adventure that rates with the best. It's *wild honey hunting*, and anyone can do it.

What they're talking about, usually between bites of bread spread thick with the dark sweetness of hollow-tree honey, is a simple sounding process: They find foraging wild bees, "track" them to their home tree, then take the honey from under the fiery stingers of the dive-bombing residents.

Once foraging wild bees have been located, it takes 20-20 eyesight and strong legs to continue the hunt. A wild bee flies a couple of tight circles before setting off on his beeline course for home. The hunter follows that course a reasonable distance, which depends on the number of detours brought about by rugged terrain, then sets out his bait again to re-fix the bees' line of flight.

Hours and miles later, deep in a swamp or grove of beeches or maples, the bee hunter hears the sound which he has been listening for . . . a concerted buzzing. He looks up and there, with bees scurrying in and out of a hole in it, is his "sweet tree."

With the first chips of the bee-hunter's axe, bees stampede to the base of operations. Some hunters, blessed with what they call "the right attitude," wear nothing extra and seldom get stung. Others must be equipped with face masks and gloves.

But whether or not he has a way with bees that makes them love him, the fellow who finds his first sweet tree and takes his first taste of hollow-tree honey will add his word to those who say, "Wild honey hunting, it's nature's sweetest sport!"

The hunt begins by baiting the bees with sweetened comb. This attracts the bees and when they leave for home the hunters follow them.

It may take hours or days of baiting or following to find a bee tree. Once the tree is found the hunters gather bee veils, smoker, axes and pails.

Smoke quiets the sting-happy bees while a hole is chopped in the tree. They frequent hollow pines, maples and beeches.

Hunters say that if man has the "right attitude" and moves slowly, the bees will not sting him. Most hunters however are well protected, for a swarm of 20,000 or more bees can severely punish the "wrong attitude."

•

An old Virginia hunter goes after honey barehanded, humming, "Honey, honey, just want to get your honey, honey."

•

Some hunters take the bees to permanent locations. Here it seems to be a box hive. With the queen run inside the rest of the bees are smoked in.

•

This nicely cut section of the tree shows the orderly result of the work of the bees. The entire summer's labor of this small colony may be about twenty pounds of honey.

Dr. Robert H. Daines of Rutgers University points to his unique bee trap used to control fireblight disease of apples and pears.

New Fruit Disease Control

To prevent orchard pollinating bees from spreading fireblight to apple and pear blossoms, Dr. Robert H. Daines, plant pathologist at Rutgers University has come up with the novel idea of making the bees carry the cure instead of the disease. He powders them with a fireblight-killing antibiotic, streptomycin, by means of a simple wooden trap inserted at the beehive entrance. The bees can't get in or out without walking through the streptomycin, which clings to their bodies ready to kill or inactivate any fireblight-producing bacteria they might pick up as they gather nectar.

Dr. Daines and his associate, Dr. Michael Szkolnik of Cornell succeeded in reducing fireblight infection of pear blossoms from 40% to less than 1% in controlled greenhouse tests. The bees did not do as well in preventing the disease in apple blossoms. The scientists attribute this to the difference in flower structure. The bee can land in the shallow nectar cup of a pear blossom feet first. The apple blossom, however, isn't so accommodating. Unlike pear blossoms, apple blossoms have stamens that are tightly clustered together around a deep calyx cup, which makes it more difficult for the bee to get into with his streptomycin-covered legs.

The plant scientists are attempting to solve this problem by nailing a cheesecloth net on the upper section of the trap and filling it with streptomycin dust. Now the bees won't only have to stomp through the stuff, they will have to rub against it in the net and take a streptomycin dusting all over.

Dr. Daines said the method is scheduled to be tested in orchards. Merck & Co., Inc. in nearby Rahway, N.J., which makes the streptomycin product Agri-Strep for plant disease control, will provide technical assistance and assay work as it has since the project began. If it works out as well as it has in the greenhouse, pear and apple growers may expect considerable savings over the present method which calls for at least 3 sprayings during the growing season.

Dr. Daines and his associates have tried several other bacteriocides, some equally as effective, but found that streptomycin was the least harmful to pollen. He also pointed out that the principle of putting bees to work as disease control agents need not be limited to fireblight. It can be applied to control other diseases of plants pollinated by bees as well.

(from Bryan Killikelly
Rahway, N. J.)

Research Points to Increased Use Of Honey in Commercial Bakery Products

Honey may be found in, as well as on, more baked goods in the future, as a result of research by Kansas State College, Manhattan, Kans., under contract with the U. S. Department of Agriculture. This work, aimed at expanding the use of honey in commercial bakery products, shows that substituting honey for all or part of the sugar in some baked goods adds to their color and flavor and improves their texture.

A method developed in this research makes use of honey alone to sweeten cakes a commerical possibility for the first time.

Cakes with a high concentration of honey stay moist and fresh-tasting longer than do cakes made without honey. But if more than a third of the sugar is replaced, preparing cakes by a simple substitution of honey for sugar sometimes causes difficulty. A reaction of honey acids with baking powder as the batter is mixed may lead to low cake volume. Also, an intense browning reaction may occur during baking and give the cake a burned color and flavor. Extra soda cannot be added to increase cake volume, because it hastens undesired browning.

The researchers found they could control this browning reaction by raising the acidity of the cake batter in the final stages of baking. To do this they used potassium bitartrate coated with a stearate, which melts and releases the acid near the end of the baking time. Excellent cakes in

which all the sugar was replaced by honey were produced by this method. Other methods to control browning are being studied.

Honey noticeably added to the flavor and color of some cookies. Because honey gives the cookies a chewy quality, only enough to replace 5 per cent of the sugar was used in crisp cookies. Even this small amount gave added flavor to sugar cookies and vanilla wafers. In chewy cookies, such as fruit bars and brownies, honey was used to replace over half the sugar.

The bread-making process did not need to be altered when honey was substituted for sugar in bread and rolls in the tests. Honey substituted for 6 percent of the sugar in white breads and up to 12 percent in dark breads imparted a rich flavor and aroma to both.

Honeys from various flower sources differ in moisture content, color, flavor, acidity, and sugar composition. The Kansas research workers used 15 types of honey and found that only the differences in flavor and color affected the baked goods. Although stronger, darker colored honeys, including those from buckwheat and hearts-ease, were not acceptable for most baked products, they could be used in mixtures with light honeys.

This contract research by Kansas State College on honey utilization is supervised by the Eastern Utilization Reasearch Branch of USDA's Agricultural Research Service, Philadelphia 18, Pa.

(U.S.D.A.)

Seed Movements

Agricultural Marketing Service of the U.S.D.A. reports that movement and prices of the five important farm seeds including red clover, sweet clover, alfalfa and lespedeza are much higher as to price and much faster as to movement than a year ago, though still under the yearly average of years gone by. It is apparent that the repercussions of the soil bank acres have not yet drifted into very great effect on seed prices.

Bees' Effect on Harvest of Flax Seed

R. B. Kozin of Timiryazev Agric. Academy of U.S.S.R., working with 40 colonies of bees in flax fields, found that there was an increase of seed of 25.8 percent per seed ball, and in their weight 48.8%. Bees constituted 98% of all insects visiting the field.

(Bee World Review Aug. 1956)

Treatment of Bees with Nitrous Oxide

by F. B. Wells

Despite several claims that nitrous oxide causes loss of the sense of orientation of honey bees, Simpson[1] indicates that it has no such effect. The present work was undertaken to check Simpson's contention and found to verify it with only minor divergencies.

The following treatments were used in a series of experiments:

1. Control—no treatment.
2. Pure nitrous oxide.
3. Smoke from shredded cotton.
4. Combined 2 and 3.
5. Smoke from shredded cotton soaked in 5 percent ammonium nitrate solution, hand wrung, and air dried in dry weather.

A. In the first experiments, 250-300 bees from the same colony were placed in each of five cigar boxes which had one end replaced with a 12 mesh screen. The boxes were set on end with the screen up at about 50 yards from the parent colony and screened from it by a barn. When smoke was used, it was puffed in through the screen every 15 seconds. When pure nitrous oxide was used, it was led into the bottom end of the box through a tube supplied for the purpose at a rate of about 200 cc. per minute. After 5 minutes of treatment, the boxes were placed on the ground, lid down, propped open to about ¼ inch, and grass scattered lightly in front of the opening.

B. The conditions of A were used except that treatment continued for 10 minutes.

C. Two-story colonies were used and treatment 3 omitted. After dark the colonies were screened top and bottom and moved to a location about 50 yards from the original. There was a barn between the new and old locations where empty hives were then placed. In treatments 2 and 4 the nitrous oxide was fed in under the cover by means of a glass tube at a rate of 400 cc. per minute. In treatments 4 and 5 the smoke was puffed in alternately through the front entrance and under the cover every 15 seconds. In treatment 4 three heavy puffs of smoke were used each time, but in treatment 5, only one heavy puff was used. After 2 minutes of treatment the screens were removed.

D. The conditions of C were observed with different colonies using 5 minutes of treatment.

RESULTS

A1. Bees started leaving the box immediately. At least half of them left within 10 minutes and all had left within 30 minutes.

2. The same as 1 except that it took about 40 minutes before all bees had left.

3. The same as 1.

4. The same as 1.

5. Bees crawled out of the box slowly to cluster on its edge. Individual bees left the cluster from time to time; some of them appeared unable to fly and crawled away into the grass. After 15 minutes, a few bees started to fly, but most of them returned to the cluster. After 3 hours a cluster of about 50 bees remained on the box. The next morning there was still a cluster of about 25 very sluggish bees. Several dead bees were on the ground around the box and about 25 dead bees inside it.

B1. Same as A1.

2. Same as A1.

3. Same as A1.

4. Same as A1.

5. Only a few bees came out of the box at first, and most of these crawled off into the grass. Most of the bees in the box appeared to be paralyzed or dead and the rest seemed quite weak. After 1 hour, a few more had crawled outside and started to form a cluster which grew to about 50 bees in 2 hours and remained about the same size thereafter. In three hours no more than 20 bees took wing, and these only circled the box for a few minutes after which a few fell into the grass and the rest landed on the box.

Although no marked bees were used, some of them were observed individually as they took wing from the small test boxes, and these appeared to go up over the barn or around it in the direction of the parent colony in all cases involving treatments 1 - 4. This was also true for several treatment A5 bees but was not observed for any B5 treated individuals.

C1. Bees rushed out and flew upon removal of the screen. Within 15 minutes there was a sizable cluster at the entrance of the empty hive on the old location. In 2 hours this had grown to include at least 2 pounds of bees which covered the inside of the empty hive; the field force of the parent colony was now noticeably depleted. At this time the parent colony was moved back to its original position and the bees in the empty hive shaken out in front of it. Within ½ hour conditions in the colony appeared to have returned to normal.

C2. Same as C1 except that at 2 hours a little comb building could be detected at one spot in the empty hive.

C4. Same as C1.

C5. The bees were slower to fly out, and the cluster at the old location did not contain more than a pound of bees after 2 hours. When the parent colony was returned to its original site, activity was less than normal, but the effects seemed to have worn off by the next day. No unusually large amount of dead bees could be detected.

D1. Same as C1.

D2. Same as C1 but a little slower. The cluster at the empty hive after 2 hours was somewhat smaller than that in C1.

D4. Same as D2.

D5. The bees were very slow to fly although they crawled out readily. About ½ a pound of bees clustered at the old stand in 2 hours. When the parent colony was returned to the old stand, flight activity remained well below normal for the remainder of the day but appeared normal next day. There were no dead bees on the bottom board, but there were more than a normal amount in front of the hive.

Smoke from the fuel impregnated with ammonium nitrate was tested for the presence of cyanides by shaking up several portions with 2 percent NaOH solution to convert any HCN or compounds readily hydrolyzed thereto into sodium cyanide. 100 ml. of this solution decolorized 5 ml. of dilute ammoniacal copper sulfate indicating the presence of cyanides. The standard Prussian blue test was positive but rather unsatisfactory due to contamination with a reddish precipitate. Therefore, a modification was used wherein 100 ml. of solution was evaporated to 4-5 ml., cooled, 2 drops freshly filtered 2 per cent $FeSO_4$ added, the solution allowed to stand 15 minutes, without warming, 3 drops concentrated HCl added, the solution warmed gently and then cooled. The resulting characteristic pale blue-green color indicated the presence of HCN or readily hydrolyzed derivatives thereof. This is a very sensitive test as it is capable of showing the presence of as little as 0.000002 g. (0.00000007 oz.) of HCN[2].

CONCLUSIONS

Nitrous oxide (N_2O) is a poor anesthetic for bees and does not appear to affect their sense of orientation to any marked extent.

The smoke from ammonium nitrate-impregnated fuel contains hydrogen cyanide (HCN) or compounds readily converted thereto and is therefore toxic and dangerous to use indiscriminately. It appears to have some effect upon the sense of orientation of bees, possible through the destructive effect of HCN upon nerve tissue due to its inhibition of metabolic oxidation processes.

References

1, J. Simpson, *Bee World* 35, 147-55 (1954).

2. *Scott's Standard Methods of Analysis*, 5th ed. p. 660.

Pennsylvania

JET PLANES

Another Beekeeping Hazard

by W. W. Franklin

Kansas Entomological Commission

The behavior of the honeybee is a never ending source of education, amusement, and in some instances, pain. Some of the behavior patterns have been known for a long time while other patterns, under many different environmental conditions, are constantly being brought to light. These observers have found that only a small change in the environment will cause a drastic change in bee behavior.

Last June the writer was inspecting honeybees in an apiary along the Arkansas River near Garfield, Kansas. The hives are grouped in pairs with some 20 to 50 feet between each pair of hives. Inspection of the colony had proceeded in a rather normal to unusually quiet manner for such a sunny, still day. The colonies were heavy with honey and all were at least two supers high. Little stinging occurred during the inspection except for bees accidentally squeezed too hard.

However, along about 11 a.m. some fighter planes started flying along the Arkansas River. As long as the jets were flying high there was on difficulty. But when a jet plane came over at low altitude or when a formation of several planes came over there was a decided reaction among the bees. The bees on the top bars in an open colony started fanning their wings and elevating the abdomen in a manner similar to that which occurs when a puff of smoke is applied. The bees then moved down the combs, became quiet and caused no further difficulty. The same condition was repeated three or four times as more jets came over.

The greatest reaction came when four jets came over at 300 - 500 feet elevation. The top super of the colony, open at the time, had been removed without incident. The hands were moving down the ends of the super to be placed in the handholds at the front and back of the bottom super just as the jets came over. The bees made an extremely loud fanning noise some 3 to 5 times as loud as that which occurred when the single jets came over or when formations of jets came over at 1,500 - 2,000 feet. Also the bees hurried down into the combs and then came out in a fighting mood. The bees came in stinger first on the khaki trousers and shirt and on hands and arms up to where the arms were covered by the shirt. Stingers could

be removed from the back of the hands by each finger nail as one hand was raked across the other. Some forty stings were obtained almost instantly. As a result of such behavior the colony was left as it was while the stingers were removed from the hands and clothes and the hands washed to remove as much of the sting poison and odor as possible. The inspection was continued after 2 or 3 minutes, even with a number of very angry bees flying around the veil. The bottom super was removed and the brood examined without further drastic incident. The colony was found to be queened right and at least with average population.

The bees continued to be angry and to sting with the least provocation. When the covers were replaced the colony still had an angry sound. The sound produced was similar but louder than that which greets a beekeeper upon removing the covers of a queenless colony. There were no bees hanging on the outside of the colony or on the entrance board making the fanning noise. Several bees followed the veil some 300 feet away. These bees did not return to the colony as other less angry bees do, but continued to buzz the veil.

The owner was observing the inspection without protection of a veil some 25-30 feet to the rear of each colony. When the bees set up the violent uproar following the appearance of the jets, he, too, was attacked. Four bees stung him before he could duck into a lilac bush at his back.

Previous history of the colony revealed no indication of a stinging tendency. The only reason found for the stinging appeared to be the result of conditions produced by the low flying jets.

The writer had an opportunity to contact beekeepers located some 5 to 8 miles south of the Boeing Aircraft Plant at Wichita, Kansas. The apiary was located in a region which was frequently subject to flights of jet planes. No difficulty has been encountered in hive manipulation at the time of flights of jet planes. Here, however, the planes were mostly bombers and not fighter planes.

A beekeeper four miles south of the Olathe Naval Training Station at Olathe, Kansas reported that his colonies had not been affected by bombers or fighter jets. However, the beekeeper could not remember having had a hive open when a formation of low flying jets came over. In this location conversation was frequently interrupted by noise of jet planes overhead. Further investigation of this situation is being made. Comments of beekeepers are obtained whenever possible and will be welcomed by the writer.

Milum (Illinois) to Horticulture

Dr. V. G. Milum, formerly of the Dept. of Entomology and acting head, has now been transferred to the Department of Horticulture in the University of Illinois for full time on Apicultural teaching, research, and extension. Dr. L. E. Chadwick, from

the Army Medical Laboratory in Maryland, is the new head of the Department of Entomology.

This Is The Queen

— MONTANA —

Gertrude Burdett

Once more Montana selects Mrs. Burdett as the Honey Queen for 1957. She was also the Queen for 1956 and was featured in the Journal for June. She came to Montana in 1913 and joined the state association in 1929. She was president in 1931 and then secretary-treasurer. She says: "I am much the oldest Queen there is likely to be as I have passed the Biblical age for most people. But I enjoy life as I go along." Congratulations, Mrs. Burdett.

even the bees are buzzin
about how to make hay with honey in

Hazel-Atlas Pail, Comb and Queenline Jars

Sparkling, crystal-clear Hazel-Atlas Queenline Jars fill quickly, pour easily, and *sweet-talk* to the customer wherever they're displayed. H-A also offers a complete line of beautiful flint containers for your pail and comb sales. For details, get in touch with your nearest H-A representative.

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Wheeling, West Virginia

—MEETINGS—

Honey For Breakfast Week — April 21-28

Honey for Breakfast Week begins on Easter morning. This picture suggests serving fresh fruit with muffins, cereal and honey, a simple, well balanced breakfast in plenty of time for the Easter parade.

Sponsored by the American Honey Institute. This is one of the big occasions to tell your customers about the many uses for honey. Make sure your stores are well supplied. Most people think honey is just a spread. Tell the public about its use as a sweetner for cereals and beverages. Let folks know about creamed honey for school lunch. Stress honey in cooking and baking. Tell buyers how to store honey easily so they may buy more at one time. Put up counter displays. Get display material from American Honey Institute, Madison 3, Wisconsin.

Norfolk County (Mass.), Walpole, April 1

The Norfolk County Association will hold its next meeting at the Norfolk County Agricultural School, Walpole, Mass., on April 1, 1957 at 8 p.m. At this meeting a package of bees will be installed in the club hive. Yes, and April Fool's Day too! As usual delicious refreshments will be served.

Edith L. Colpitts, Corres. Sec.

Eastern Missouri - April 2

Swarm control will be the problem to consider. Refreshments will be served.

Arrena S. Gerlack

South Eastern Minnesota, Zumbrota, April 12th

The South-Eastern Minnesota Association will hold their spring meeting in Zumbrota, in the Community Room of the REA Office, located on North Main Street.

This will be an evening meeting and will start at 7 p.m. sharp on April 12. The President of the State organization, Mr. Glen McCoy, has promised to speak to us at this meeting, and Robert Banker, Secretary of the Federation, will also be with us with a very interesting topic. Hiram Hanson, our newly elected president, promises a very instructive meeting and urges all beekeepers to be present.

F. Q. (Quint) Bunch
Secretary

Central Jersey Branch, Freehold, April 12th.

The Central Jersey Branch of the N. J. Association, will hold the last meeting, at 7:30 p.m., at the Office of M. A. Clark, 20 Court St., Freehold, Friday, April 12th. Milton Stricker is to be the speaker. Special attention to questions. Movies are on the program. Visitors welcome.

Forrest Campbell
Sec.-Treas.

Midwestern (Kansas City), April 14th

The Midwestern Association will meet Sunday. April 14th, 2:30 P.M., at the I.O.O.F. hall, 812 Westport Road, Kansas City, Missouri. Topics to be discussed are, "Installing Packages", "Queen Introduction" and "Pollination." Also a film, "The Rival World," will be shown. Everyone welcome. Refreshments will be served by Ladies Auxiliary.

J. F. Maher, Secretary

Westchester County (New York), New Rochelle, April 28th

The Westchester County Association will hold their "Annual Fellowship Dinner" on Sunday, April 28, at the Coronet Tea Room, 16 Lockwood Ave., New Rochelle, at 2:30 P.M. sharp.

After dinner, we will retire across the street to the Odd Fellows Hall to have a short business meeting. At this time "Bee Problems" will be discussed on Swarm Control and Toxic Sprays.

An invitation is extended to all beekeepers and their families.

Mrs. Alfred Roth
Publicity

Middlesex County (Mass.), April 27th

The Middlesex County Association (Mass.) will hold its final indoor meeting of the spring season on Saturday, April 27, at 6:30 P.M.

Prior to the pot-luck supper, mem-

bers will install a package of bees in a new hive. This hive will be moved during the spring and summer months to each outdoor meeting so that the members will have an opportunity to inspect the hive and watch its progress.

At the March meeting of the Association the film "Modern Bee Breeding" was shown to the members."

L. C. Proctor, Corres. Sec.

Worcester County (Mass.), Worcester, April Meeting

The April meeting of the Worcester County Association will be held at the Worcester Natural History Museum, 21 Cedar St., Worcester, Mass. A pot luck supper will be served, at 6:30 P. M. Speaker of the evening will be Mr. Wallace Parker, Secy. Massachusetts Federation of Beekeepers, who will show slides on beekeeping and install a package of bees in the club hive in the lecture hall.

Peter S. Stapor, Publicity

Wisconsin Spring Meetings for April and May

Marshfield, Tuesday, April 9th (Ernest Schroeder, RFD No. 3, Marshfield, in charge) Appleton, Wednesday, April 10th (Leonard Otto, Forest Junction, in charge) Bloomer, Monday, April 29th (Robert Knutson, Ladysmith, in charge) Poplar, Tuesday, April 30 (Joseph Deiser, 1110 Central Avenue, Superior, in charge) Menomonee Falls, Saturday, May 9th (Emerson Grebel, RFD No. 3, Beaver Dam, in charge.)

Apicultural Society of Rhode Island Does Things

This picture, sent by W. K. Davis, President of the Apicultural Society of Rhode Island, shows Wallace R. Wilder, Apicultural Society of R. I. Beekeeping Director for Providence County giving helpful beekeeping management advice to three young members of the Society, left to right, David Y. Warner, 11, Walter J. Raymond, 10, and his brother, Wilfred J. Raymond, Jr., 11. Picture was taken at the outdoor meeting held at Edwin J. Knight orchard, Greenville, R. I.

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30 or More Each	3.85	4.85	5.85	6.80

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12 to 29—$1.30 Each 30 or More $1.20 Each.
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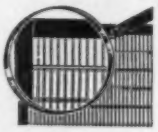

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2 lb. w/q.	3.50	3.00
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Iowa Summer Meeting
Dakota City, July 13

Saturday, July 13th, the Iowa Beekeepers' Association will have a summer meeting at Henry Hansen's, Dakota City. Note Henry's article in this issue, "Spring Management of Package Bees", in the Commercial Department. Any one interested in the management of package bees will find it to his advantage to be at this meeting. Writing about it, Henry says: "We will have one or two yards of package bees with three different strains of bees. We will have a good strain of Italians, some 1957 Starlines, and a few of the proposed 1958 Starlines. We will weigh these colonies and you can see for yourself what the difference is."

Federation Auxiliary

The annual meeting of the American Beekeepers Federation Auxiliary met in the Red Velvet Room in the Lafayette Hotel January 31, 1957 for a 10:30 Brunch. 120 women were present from 23 states, Washington D. C. and Canada.

The meeting was opened with a prayer given by Mrs. Ivy Stone of Pasadena, California, a past president. Mrs. Ethel Krebs, Fair Oaks California, the first president, gave the welcome. The response was given by Mrs. Louise Schaefer, Osseo, Wisconsin, immediate past President.

The President, Mrs. Lola Lyle, Sheldon, Iowa, conducted the business meeting.

Mrs. Harriett Grace brought greetings from the directors and staff of the American Honey Institute and talked on the roll of the housewife and the use of honey in the home.

Past Presidents, other officers and charter members who were present were recognized. Greetings were read from those who could not attend. Honored guests were state honey queens Miss Carol Jawort of Wisconsin and Miss Laurine Schmitz of Nebraska.

Many door prizes were drawn during the meeting.

California, as host, to the convention provided as entertainment a Coffee Klatch for all Monday evening, a tea for the ladies Tuesday afternoon and an all day tour to Knotts Berry Farm and Disney Land. Transportation and admission were paid by California Honey Packers and Dealers. California went all out to entertain the ladies and we deeply appreciate all that was done for us.

Same officers were reelected.

Helen S. Partello, Secy.,
Am. Beekeepers Fed. Aux.

Starlines and Regular Package Bees for 1957
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99 and up	1.20

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3-lb. pkg. w/q.	$5.00	$4.90	$4.85
2-lb. pkg. w/q.	4.00	3.95	3.90
Nice large Queens	1.15	1.10	1.00

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3 lb. pkg. with young laying queen	5.35	5.10	4.85
4 lb. pkg. with young laying queen	6.45	6.10	5.85
Extra Queens	1.40	1.30	1.20

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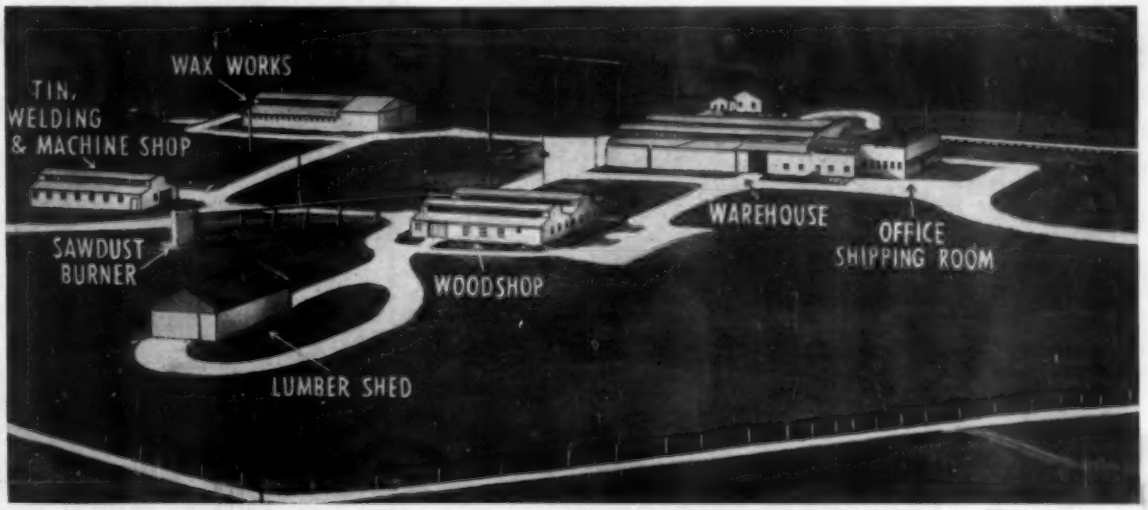

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25 - 99	1.20	1.55	3.85	4.80	5.75
100 - up	1.15	1.45	3.75	4.70	5.65

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2 lb.	$4.25	$4.00	$1.40	$1.30
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Express	3-lb. pkg. w/q	$4.40	$4.20	$4.00	Parcel Post
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Editorial

The Check-Off Plan Deserves Your Support

At the recent annual meeting of the American Beekeeping Federation in Long Beach, California, a resolution was adopted requesting the honey packers and dealers to automatically deduct the Check-Off fund (1 cent per 60-pound can from the producer to be matched by 1 cent per can by the buyer) from all honey purchased, with the provision to refund such money to the producer on written request.

This move came because participation in the Check-Off plan during the past year had failed to reach a desired level. In fact, participation was far below expectations.

This move came after the problem had been discussed fully by the Executive Committee and the Board of Directors of the American Beekeeping Federation, and presented to the National Honey Packers and Dealers Association. Besides being recommended by the Federation, it also is a recommendation of the National Honey Council.

The Federation News Letter recently stated that plans for collection of funds in this manner for promotion and for research are already in operation by the American Dairy Association who have raised $7,000,000 for those purposes this year. They report that the American Meat Association and other nation-wide organizations of producers of agricultural products are also using similar plans.

The National Honey Packers and Dealers considered the request but failed to take action on it. One important reason for no action was that there are a number of packers who have not endorsed the original Check-Off plan. Some of those who are cooperating in the plan rightfully contend that, if they automatically deduct, the packer who is not participating will have an advantage. Others feel they may create ill will among their sources of supply if they automatically make the 1-cent deduction.

The consensus of opinion at the convention was that the automatic deduction would make the plan more effective and simpler to operate. It was fully recognized that there must be better participation both at the producer level and packer level if the Check-Off plan was to succeed. It was further agreed that the future success of the plan lies entirely in the hands of producers, *and along with it much of the future prosperity of the industry.* We quote the following word for word from the Federation article:

"We cannot expect to continue to hold our position in a highly competitive food industry, *unless we devote more funds to promotion and research.*"

We heartily endorse these statements. We whole heartedly give our support to the Check-Off plan. We have printed here much of the Federation's story because we know it will reach more producers and we feel that this is something that should have the support of all beekeepers everywhere.

No one can deny that the bee and honey industry needs more promotion and research. And this becomes vital to our future in today's competitive markets.

The American Honey Institute has done and is continuing to do a marvelous task of promoting honey in cookery and as a food. Every dollar spent in Institute work returns manifold. We can only wonder where the industry would be today if we had no Institute.

The honey promotion work of the American Beekeeping Federation also has been and continues to be an important factor in our marketing of honey. From the grass roots of our country up through state levels and to the National level, it plays a worthwhile part.

But compared to many other agricultural products, our promotional efforts are quite small. *We cannot afford not to increase our promotional programs.*

The same is true of research. The Federation has made good progress in securing more funds for bee and honey research. We reported this in the February issue of The American Bee Journal in our editorial. It is hoped and expected that the funds spent for research will be a benefit to the industry in beekeeping equipment, pollination and honey research.

The Federation is renewing its efforts to obtain a further expanded research program. We endorse this move because we are convinced that more lasting good can come to the industry through research than by any other means.

The Wall Street Journal on March 21, 1957 featured a story concerning the findings and coming recommendations of the President's Commission on Increased Industrial Use of Agricultural Products. It is reported that they will send an interim report to the Congress in April which will recommend "positive" spending on research as a means to save billions in "negative" outlays for price support, the soil bank and similar programs.

Nothing is said about honey in this article but perhaps now is the time to seek additional funds for beekeeping research. For example, if we knew what was in honey that makes it a superior sweet—that ingredient which has caused all the lore about honey down through the ages—and how to process honey so that this ingredient isn't destroyed or lost—we couldn't produce enough to fill the demand.

American Foulbrood (In Color)

Ontario Agricultural College, Guelph, Ontario, recently has published ten pictures in color of normal brood and examples of American foulbrood, as a supplement to Bulletin 429. The color reproduction of these fine color photographs by M. V. Smith is exceptionally fine, and should be of special interest to educators and beekeepers. The Supplement to Bulletin 429 can be obtained for 25 cents each by writing to Mr. S. H. H. Symons, Director, Statistics and Publication Branch, Department of Agriculture, Parliament Building, Toronto, Ontario, Canada.

—The Market Place—

BEES AND QUEENS

BOOKING for 1957 Carniolan and Caucasian package bees. 2-lb. pkg., $4.00; 3-lb., $5.00. Untested queens, $1.00 each. Tillery Brothers, Greenville, Ala.

PACKAGE BEES - Take a vacation on your express money. Come for your bees; be our guest while here. 2200 hives to shake. Booking orders now. Miller Bros., Safford, Ala. U. S. A.

ITALIANS - Packages, Queens. Martz, Rt. A2, Box 846, Vacaville, California.

CHOICE ITALIAN BEES — 3-lbs. with queen, $4.50; 2-lbs. with queen, $4.00. Queen, $1.20. Sheppard Apiaries, Aberdeen, N. C.

QUALITY BRED ITALIAN QUEENS—March, $1.25 each; April through May, $1.00 each. Breeder queens selected from our Michigan Apiaries. Walter D. Leverette Apiaries, P. O. Box 364, Ft. Pierce, Fla.

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CARNIOLAN and CAUCASIAN QUEENS—$1.00 each. I have the late Albert G. Hann strain of bees. They build up fast and make lots of white comb honey. The gentlest of all bees. I have increased my equipment to supply the demand. Roy Waddell, Rt. 3, Woodruff, South Carolina.

GOLDEN ITALIAN QUEENS that produce large gentle bees, excellent honey producers. Price, $1.00 each. Live arrival and health certificate guaranteed. Alvin J. Ducote, Hamburg, La.

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YELLOW ITALIAN QUEENS—Real producers. Gentle, easy to handle. Satisfaction guaranteed. 1 to 10, $1.10; 11 to 100, $1.00. Prepaid Air Mail. Hignite's Bee Farm, 230 So. Lynchburg, Baytown, Texas.

GOLDEN ITALIAN QUEENS—Bees very large and gentle and heavy honey producers. Price, 1 to 25, $1.10; 25 to 100, $1.00 each. Guaranteed live arrival and health certificate. Allen H. Gauthier, Hamburg, La.

QUEENS 95c—Bees 70c up, depending on shipping dates. Will supply new cages or fill your cages. A. V. Dowling, Valdosta, Georgia.

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OPEN ON OUR BOOKS—600 packages of bees. D. J. Word Apiaries, Box 512, Maxwell, Northern Calif.

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CAUCASIANS—Very hardy, good working, gentle bees. "Hastings" breeder queens used. Young laying queens, $1.25 each. Ready about April 10th. Fred Brock, McDonald, Tenn.

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FOR SALE—Royal Jelly and The Little Queen Royal Jelly Extractor. Royal Jelly Enterprises, 1017 Los Carneros Avenue, Napa, California.

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SUPERS, COVERS, BOTTOMS—Good grade wood. Supers $1.00, covers and bottoms (4 cleat) 75c. Write for other information. Arthur Johanson, 11360 Redwood Highway, Healdsburg, California.

23 COLONIES, supers, extracting equipment. Charles L. Thompson, Rt. 3, Falmouth, Ky.

1000 colony package, queen and honey business in the clover belt of Alabama. Never a crop failure. Much extra equipment. Reason for selling, heart attack. Edward C. Hanson, Livingston, Alabama.

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Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

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FOR SALE — 4-frame extractor, 2 75-gal. tanks, 2 honey pumps, 2 steam uncapping knives, 1½ h.p. gas engine. T. C. Veirs, Olathe, Colo.

ROYAL JELLY BEAUTY CREAM—1 oz. "Emperatriz Carlotta" Royal Jelly face cream $3.00; 12 for $20.00. 1 oz. deluxe package Royal Jelly face cream $5.00; 12 boxes for $38.00. Postage paid anywhere in the U.S. Prairie View Honey Co., 12303 - 12th St., Detroit 6, Mich.

FOR SALE—Ten frame hives, starter with wire in each. 5 8-frame hives, same. 3 band Italian bees, fed spring and fall with sulfathiazole, with 70 supers with frames. Loran A. Bane, Otterville, Missouri.

ROYAL JELLY in capsules — Box of 30 capsules with 10 milligrams each, $1.50 to beekeepers; retails for $3.00. Box of 30 capsules with 25 milligrams, each $2.50 to beekeepers; retails for $5.00. Also in jars of 1000 to hospitals, clinics and other large users. Prairie View Honey Co., 12303 - 12th St., Detroit 6, Mich.

FOR SALE—Largest pollination service in New Jersey. Includes bees, equipment, customers and truck. Fisher Pollination Service, Century Lane, Plainfield, New Jer-

FOR SALE—Warehouse approximately 60' x 28', cement floor, inside truck pit. On two lots in eastern Nebraska. Sweet clover alfalfa territory. Charles Hess, Rt. 2, Box 2180, Loomis, California.

120 colonies 3-story tens. Good combs, etc. No disease. Also thirty frame Woodman radial extractor. Am retiring. H. Peterman 551 No. Windsor Ave., Stockton, Calif.

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HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, Calif.

WAX WORKERS render and buy beeswax, manufacture plain and WAVYWIRED foundation. Prices and shipping tags on request. Wax Workers, Ithaca, New York.

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WANTED—Extra white and light amber honey. Let us ship you the containers. Sell us your honey for CASH on delivery. The Hubbard Apiaries, Manufacturers of Bee Supplies and Comb Foundation, Onsted Mich.

WE ARE PAYING top market prices for beeswax. Ship to any one of our plants: Sioux City, Iowa; Lima, Ohio; Rogers Texas; Waycross, Georgia; Anaheim, California. Sioux Honey Association, 509-11 Plymouth St., Sioux City, Iowa.

WRITE FOR SHIPPING TAGS and current quotations on rendered beeswax. Any amount from one pound up bought. If you have 25 pounds or more, save 25% by letting us work it into foundation for you. Walter T. Kelley Co., Clarkson, Ky.

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34 sixties sweet clover, amber. Otto Lange, Linn, Kansas.

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BRAND MELTERS and all kinds of bee supplies. Catalogue free. Hodgson Bee Supplies Ltd., 565—13th Ave., New Westminster, B. C.

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Positive Grip Through the Leverage Action of This Strong Aluminum Frame-Grip.

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LIFE-TIME TANKS for Brand Capping Melters now offered made of ⅛ inch Boiler Plate hot galvanized after welding. Senior size, $95.00. A. G. Woodman Co., Grand Rapids, Mich.

WANTED

WANTED—Bees and used equipment in Midwest. Ray Johnson, Princeville, Ill.

WANTED—50 or more colonies of bees in 10-frame equipment. Henry Seltrecht, Rt. No. 1, Marshfield, Wis.

WANT TO BUY 300 to 500 colonies of bees, with equipment to run, on honey basis. A. Jurgensen, Holstein, Iowa.

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HELP WANTED—Seasonal, year around. Experienced or inexperienced. In Texas, North Dakota. Stewart Apiaries, Trenton, Texas.

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EXPERIENCED BEEKEEPER wants steady position on share basis. Prefer California locality. Box FV, c/o American Bee Journal.

HIGH QUALITY ITALIAN QUEENS & PACKAGE BEES

2 lb. pkg. w/q. $3.75, 50 & up $3.50
3 lb. pkg. w/q. $4.85, 50 & up $4.65

QUEENS $1.20 each
50 and up $1.00 Air Mail

Bees are reasonably gentle, very prolific and extra good honey gatherers. Live arrival and health certificate guaranteed.

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Queens available after May 12
$1.00

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A very new and very fine red raspberry, named New Hampshire, originated by Dr. Yeager, head of the team of plant breeders at the University of New Hampshire. Long season, heavy yield, excellent flavor, extremely winter hardy. Plants available from Donald C. Chandler, Box J, New Gloucester, Maine.

HONEY PLANTS our specialty. Catalogue on request. Pellet Gardens, Atlantic Iowa.

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COMB HONEY PRODUCTION with new ideas. Plenty comb honey every year, all frames, sections finished. No swarming, regular equipment. Surprising results. Instructions $1.00. Diemer Bee Co., Rt. 2, Bx. 7, Liberty, Mo.

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QUEENS

Only source of original strain of imported Queens by the late Albert G. Hann.

Queens $1.35 each, air mail, discount on quantity. $2.00 each to foreign countries. Safe arrival in continental U.S. only. Ready March 1st.

No package bees this season.

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The finest thing ever offered beekeepers.

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See your dealer or write.

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—Crop and Market—

by M. G. Dadant

Bees Wintering - It is generally reported that bees have come through the winter in quite satisfactory condition. The possibilities of flight have generally been good and the only complaints we get is that in many cases the colonies may be short of feed and need careful attention during the spring season so that they will not dwindle. This is particularly true in California although by this time the spring early flows have started to relieve this condition.

Of course, in many sections of the Middle West and plains states where the season was so dry last fall there was no possibility of a fall crop and shortage of honey did prevent stimulative brood rearing in the fall and colony clusters may be short this spring and slow to build up.

Increase - We do not believe there will be as much increase this year as usual, largely due to the fact that many sections of the country were presented with the difficulty of dry conditions during the fall which have persisted, particularly in the Southwest over several years. This has militated against any great amount of increase. No doubt the winter losses will be made up. Some sections expect increases more than 5 or 10%, namely Minnesota and Wisconsin and extending east through the territory which is enjoying more moisture than usual. Some increase also has been made in the Southeast where conditions are gradually assuming a more normal status.

Moisture - It's been a good many years since reports have come in so enthusiastically about moisture conditions. These exist particularly throughout all of the eastern sections of the United States beginning with Illinois and Indiana and extending down into Kentucky and Tennessee and then Southeast and all along the Atlantic coast. Some earlier dry conditions in Florida and Georgia have not made up entirely the deficits of previous years but are gradually coming back to normal.

Conditions are quite satisfactory in Idaho and all along the western coast except that southern California as yet has not, within two or three inches, as much rainfall as in 1956. However, conditions are reported quite good and possibilities for sage honey seem apparently better than usual.

In the Southwest is where the much finer conditions are apparent. Extending from Arizona through New Mexico and into all of Texas and then clear across the South the abundant rains have made up for all soil deficiency in moisture but, of course, the deficits in subsoil moisture in the Southwest still are to be made up and probably will take several years to come out from under the shortages accumulated over the past few years.

Probably the section which is still deficient in moisture extends from central and eastern Illinois westward through Minnesota, Iowa, and into Missouri and then in the plain states of Kansas, Nebraska, the Dakotas, and even into Montana and eastern Colorado.

However, we do have an optimistic note in the long range report by the weather bureau of the Department of Agriculture in Washington which states that although temperatures will, during April, be perhaps lower than normal they will also be accompanied by more than the average amount of moisture through April and extending into May.

Honey Plants - As the moisture - so the honey plants. With fair rains last fall and copious moisture during the winter and spring the northern sections and extending into the east, south and central south appear to have honey plant conditions which are almost, if not, ideal. Farther west dry conditions last summer and fall did a great deal to hinder the growth of the clovers and as a consequence the possibilities this year are not too apparent. Many of the reporters assumed that soil bank efforts might help a great deal, but this is more in the future than for the year 1957, particularly in the northern areas. In the Southwest, of course the drought during 1956 prevented proper growth of crimson clover and vetch, but likely with the soil bank in operation this will be balanced this year by more than the usual planting of the annual Hubam clover throughout that area.

We would also suggest that conditions in the plain states extending into Montana and Colorado are not as good for plants although, of course, the irrigated sections still have possibilities. The Rockies seem to have had the usual amount of snow so that probably irrigation waters will be as plentiful as in 1956. In the western coastal ranges however snows have not been too heavy.

Honey on Hand - Reporters are almost unanimous in reporting that there is only a modicum amount of honey on hand and it will readily move before the new crop. Some sections still report some honey in the hands of larger producers and this is particularly the case with a few producers in Montana, a number in California and a few scattered ones in the plains region. On the whole, however, honey on hand unless it be in the hands of packers is not at all excessive and should all move. It is likely that the slackening in honey purchasing by the packers has partly been due to the fact that they awaited until after income tax time so as to be able to fill their needs for tax levees before buying to refill. However, we personally believe that packers are pretty well supplied with about enough honey to carry over into the new crop.

How is Honey Moving - Honey seems to be moving just moderately with no brisk demand apparently and the demand from abroad has during the whole season been somewhat subdued. However, in December according to the government report two million pounds were moved of which Canada, West Germany, Netherlands, and Belgium each took about one fourth with other countries taking minor quantities. Imports during the same period were negligible.

Summary - On the whole bees are perhaps in as good a condition as average and with less losses which will be easily made up by increase with only moderate over all increase anticipated.

Honey plants are in dubious conditions through the Central West and extending into the plain states but more than average in most other sections and the shortages in the Southwest perhaps being made up by planned more than average plantings of Hubam clover.

Honey has moved at as good prices as a year ago and seems to be cleaning up in just about the same fashion as in 1956 at this date but perhaps a little more moderate over all demand which may possibly be traced to less effort on the part of the honey producers and packers.

Honey Wanted- Cars and less than car. Top Prices.
C. W. Aeppler Co., Oconomowoc, Wis.

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PACKAGE BEES and QUEENS
John S. Shackelford
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ITALIAN BEES AND QUEENS
3-lb. with queen $3.90
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Deduct $1.00 for queenless packages.
Health certificate, full weight and live delivery guaranteed.
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Truck loads a specialty. Nuclei made to order. Caucasian and Italian queens.
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Top Quality—Raised in Shasta County in Standard Nuclei—Quantity Discounts Good Service.
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ITALIAN BEES AND QUEENS
2 lb. with queen.....$3.25
3 lb. with queen..... 4.15
4 lb. with queen..... 5.05
Queens each 1.10
Health certificate and live arrival guaranteed.
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THAT STAND TEST FOR HONEY GATHERERS: gentle, prolific, bred from hives making 300-lbs. or over of honey. Fumagillin-fed grafting and queen yards. Health certificate with each shipment. We are better prepared to serve you with both packages and queens. COME AFTER YOUR BEES or shipped express or P.P.—prompt live delivery guaranteed. Small orders cash, large orders $1.00 deposit per package, balance two weeks prior shipping date. Queenless packages deduct $1.00 per package.

All packages with queens F.O.B. Jesup

Quantity	1 - 25	26 - 109	110 up
2 lb. pkg.	$3.75	$3.50	$3.25
3 lb. pkg.	4.75	4.50	4.25
4 lb. pkg.	5.75	5.50	5.25
5 lb. pkg.	6.75	6.50	6.25
Queens	1.25	1.15	1.00

Tested queens $2.50. All queens mated and laying. Delivered airmail. 1 or a 1000.

FLOWERS BEE COMPANY, Jesup, Georgia, U.S.A.

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Gentle bees, less swarming, good producers, health certificate and live arrival guaranteed — just a few things you get when your requirements are sent to me.
No extra charges on orders booked in advance.

	1 - 25	25 - 50	50 - 100
2 lb. pkg. w/q	$3.70	$3.45	$3.20
3 lb. pkg. w/q	4.60	4.30	4.00
4 lb. pkg. w/q	5.50	5.15	4.80
5 lb. pkg. w/q	6.40	6.00	5.60
Queens	1.20	1.10	1.00

FARRIS HOMAN **Shannon, Miss.**

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Three-banded Italian bees and KELLEYS ISLAND 3-banded Italian queens direct from our own Bee farm. Shipments start April 1st — express or parcel post shipment. Thousands of extra queens.

	Queens	2 lb. w/q	3 lb. w/q
1 - 24	$1.25	$4.25	$5.25
24 - 99	1.20	4.00	5.00
100 and up	1.15	3.75	4.75

EARLY SHIPMENTS

The season on our bee farm is earlier than normal and it appears that we will have bees and queens ready for shipment early. If you need bees or queens early contact us.

WALTER T. KELLEY CO., Clarkson, Ky.

BEES — QUEENS
Rearing Italian bees and queens of reliable quality is our only business.
47 years experience

	1 to 24	25 - 99	100 or more
2 lb. pkg. with queen	$4.25	$4.00	$3.75
3 lb. pkg. with queen	5.35	5.05	4.75
4 lb. pkg. with queen	6.45	6.10	5.75
5 lb. pkg. with queen	7.55	7.15	6.75
Queens	1.40	1.30	1.20

For queenless package deduct $1.00 per package.
Tested queens $2.50. All queens postpaid. Packages F.O.B.
W. E. PLANT **Rt. No. 2** **Hattiesburg, Miss.**

JENSEN SAYS:- We're booked through April. If yours was one of the many orders we could not conscientiously accept because of prior bookings and fear of disappointing you at delivery time, we are sorry indeed!

Old Customers: If not yet booked for package bees especially, won't you send us your estimated requirements earliest possible, it will help us to serve you better. Inquiries and orders have been unprecedented this early. QUALITY and SERVICE over the years has won us many steadfast friends. We thank you!

Our prices remain the same as advertised in March Bee Journals.

Jensen's Apiaries, Macon, Mississippi, U.S.A.

HONEY WANTED ALL GRADES, SEND SAMPLES, ADVISE QUANTITY AND PRICE.

EVERYTHING FOR THE BEEKEEPER

HONEY SALES CO. 2817 No. 2nd St. MINNEAPOLIS 11, MINN.

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3 Banded Italian Queens and Package Bees

	2 lb. Pkgs. w/Qs.	3 lb. Pkgs. w/Qs.	Queens
1 - 24	$4.00	$5.00	$1.25
25 - 99	3.75	4.75	1.15
100 - up	3.50	4.50	1.05

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2 lb. pkg. w/q.—$3.50; 3 lb. pkg. w/q.—$4.50; Young Queens—$1.00 ea.

Health Certificate, live arrival guaranteed.

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Gentle and Industrious Caucasian Queens from some of the highest honey-producing stock in North America. Ready to ship about April 10. 10% books your order, balance two weeks prior to shipment. Air Mail.

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Quality and Service Doesn't Cost — It pays

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2 lb. w/queen $3.25; 3 lb. w/queen $4.25
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Queens raised from heavy-producing stock.

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QUEENS $1.00 each

Queens that produce gentle yellow bees. Very good producers. We guarantee satisfaction and live delivery. All queens shipped AIRMAIL.

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A COOL SMOKE?

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DEC 57

Rot Proofing

That Something Extra You Get in Dadant's Lewis-Beeware

See all those nice supers up there? How many times have they been put on the hives? Taken off the hives? Brought in for extracting? Stored? And used again, over and over? — — Rains, prying, chipping, maybe freezing, tear down their life. Just how many years will that equipment last to do the job?
That's where Rot Proofing comes in — Rot proofed supers have a long, useful life. All Dadant's Lewis-Beeware — hive bodies, super shells, cover rims and bottom boards are impregnated with a laboratory controlled, rot-proofing compound. It is a prime coat so only one coat of paint is needed. Protects against decay, rot fungicides, termites. Repels water. Rain won't leach it out. You gain a lot with Dadant's Rot-proofed equipment.

Who's This Little Fellow?

You'd almost think he was really lying there back of this sheet of Dadant's Surplus Foundation. It's only a picture of the little tike but, think of it, you can get most of the details right through the sheet of foundation! So you have a good start for your prize section or bulk comb honey when you begin with Dadant's Surplus Foundation. It's your guarantee of tasty, delicate, downright good comb honey. Your customers will always come back for more.

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